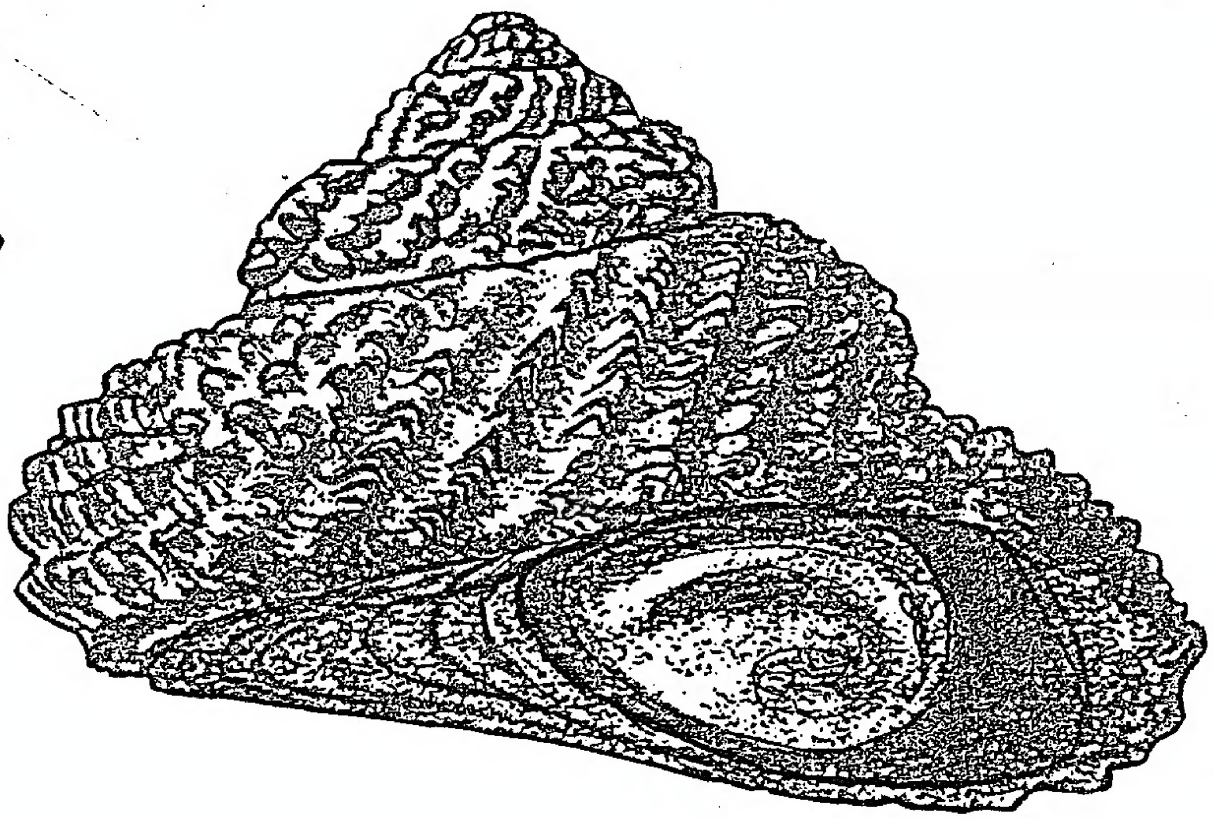
COOKIA



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THREE DAYS IN PORT PEGASUS, STEWART ISLAND

By Jenny Raven

The following account does not contain a lot of information on shells, as such, since the trip to Pegasus was organised mainly for other reasons. However, I did manage to get on shore for most of the low tides although, with limited time, it was hard to resist also collecting the edible varieties that abounded. As events turned out one species dominated my attention. In fact, according to the experts, it appears that I ended up collecting 101 varieties of the same *Buccinulum* species! To me, however, each one is special and provides fond memories of a wonderful trip.

Sunday 20 January 1992 - I met up with my friend Doug Hicks, his father and his brother David at Halfmoon Bay, Stewart Island. Our mission was to travel to Port Pegasus. Doug's father had been born on Stewart Island and, now in his 70s, wanted to return to Port Pegasus. He had not been back to the place since tramping there along the Tin Range track in his youth. The possibility of some shell collecting was of interest to me and I jumped at the chance of the extra berth on the boat. I was a little concerned that the low tides during the days we had chosen to be there were from 8 to 11 o'clock. However, they were listed at about 0.6m below average, being about the lowest level they reach in that area.

Where once there was a thriving settlement at Port Pegasus, to-day no habitation remains and no one, we discovered, ever asks to go there. However, one charter boat skipper was prepared to take us, and we got permission from the Department of Conservation to enter the area. Midday Sunday saw our 44-foot boat loaded up and ready to go. I was getting nervous, however, since the skipper's wife wasn't going to come with us - she was easily seasick - a local I spoke to said she'd been there once but never again. "The seas were too rough!" In fact, I found that very few people I met had been there at all.

Our boat looked small as it chugged out of Halfmoon Bay. Too late now for second thoughts as I gulped another sea sick pill! On each wrist I was wearing a knitted band with a circular button sewn on the inside that Kevin, our skipper, had offered me. "Wear the button over your pulse", he told me. I was prepared to try anything! The weather was fine and the seas, so far, calm. Kevin said that if the weather held we would make the eight hour crossing in one go.

We crossed the entrance to Paterson Inlet, saw the long sandy beaches which form the seaward side of The Neck, chugged on past Chew Tobacco Point and round East Cape. The boat was able to keep within a hundred metres or so of the shore, and I was almost beginning to enjoy watching the various landforms and sandy beaches sail past. After about three hours we crossed the entrance to Port Adventure. Shelter Point, the most easterly point of Stewart Island, was coming up. This was to be the decider as to whether we carried on or not since, once round this point, we would be in the southern seas with nothing between us and the Antarctic. We rounded Shelter Point and headed for the narrow gap between it and the Breaksea Islands.

Suddenly the boat was being hit by large waves - we were out at the entrance to a large bay known as Tikotatahi and now we had met up with the Southern Ocean! The waves reared up and surged away towards the shore which now seemed a long way from us. For a while we battled our way against the waves and I was quite pleased when, at last, the skipper said he'd call it quits and headed us in for the shore. We virtually surfed in and, as we neared the sandy shore, a safe little harbour entrance soon opened up. This was to be our mooring for the night.

Safely moored - green bush and sandy beaches surrounded us. The four of us rowed the dinghy to the southern shore. An abandoned hunter's camp sat at the water's edge. We made our way through the bush and over a small hill to the large bay on the other side. Under the numerous

rocks at the far end of the beach I noted several small cream-coloured *Buccinulum littorinoides*, most of them with faint red lines; also many *Anisodiloma lugubris*. Coming back through the bush something moved ... Surprise of all surprises, it was a kiwi, brown in colour and much larger than I had expected. It was out in the daylight pecking at the leaf litter. It reappeared twice before we lost it from sight. After tea on the boat, we rowed back to the hunter's camp. The tide was now low. I found more *Buccinulum littorinoides* under stones, larger than before (about 25 mm), some with red bands, some orange, others mottled, being some of the most attractive *B. littorinoides* that I have seen. The other members of our party meanwhile collected pauas and oysters for the dinner table.

Monday - the morning dawned calm and the wind, thankfully, changed to the northwest. I felt confident enough to eat a plate full of pauas for breakfast. The skipper said he'd wait a short while for the sea to die down, so we rowed to a beach at the harbour entrance on the northern side. I peered into the water which was very clear as we neared the shore. The tide was still low, and, in about three metres of water, I noticed some curious buccinulums - they were out walking on the sandy bottom, no rocks in sight - each acting like a *Cominella* leaving a trail behind that was clearly visible in the sand. Borrowing some high thigh waders, I jumped over and scooped a few up. They were definitely buccinulums - probably *B. pertinax*, being fat and squat (40 x 20 mm) and cream-coloured. Some had lovely clear reddish bands on the lower whorl, dying out to give a mottled appearance between raised axial ribs on the upper whorls. Once on the beach, we found that we were not the only visitors - a curious seal, halfway along the beach, sat up on his flippers and eyed us attentively, even when we got close. He didn't mind us at all! Time to go - so, with sea sick tablets taken and wrist bands on tight, we left our lovely mooring at Tikotatahi.

The sea was definitely calmer. At the southern end of the bay we negotiated a very narrow passage between Owen Island and John Point. It seemed to be only a few boat widths wide which was one of reasons that the skipper said he wouldn't risk it the day before. We passed the entrance to Lords River. The coastline was now changing from low scrub-covered hills to steep cliffs. The sea surged up against large rock platforms and tugged at the masses of yellow kelp that hung off them. We passed, first, White Rock and then Black Rock, both rising sharply out of the sea and aptly named. It was getting a little rougher, to the extent that the oysters collected the night before tipped their bucket over in one roll and almost escaped over the side! I wedged myself in the cabin doorway -it seemed the safest place - and I watched the others retrieve the oysters.

After another hour we arrived off Seal Point, a massive kelp-covered rock platform. No seals to be seen but a very choppy sea as the waves ran up against the steep cliffs and then returned to hit us. We were soon on the landward side of The Sisters, two very tall sharp rocks, and we could now see, with relief, the northern entrance to Pegasus. We entered between Orphan's Rock and Pearl Island. Now we were in the bush-clad northern arm of the harbour - no sign of habitation anywhere. It was nice and sunny, the water was calm, and, more importantly than anything, I hadn't been sick!

The skipper said we should celebrate with some fish for lunch. Out came the rods he carried on board and, within minutes, we were all pulling up cod. They were almost too easy to catch. Kevin stood there with his knife, gutting them as soon as they hit the deck. No time to seach for *Chlamys dichroa* in the stomachs! I was actually enoying the fishing - and, ten minutes later, they were sizzling in the frypan.

After lunch we returned to investigate a crayfish pot dropped near the entrance. When it was opened, out fell about 15 crayfish on to the deck. That was tea organised! But in the excitement I had forgotten to see if there were any shells in the pot. The afternoon was spent cruising the North Arm. The others took the dinghy to view the Belltopper waterfall while, with only the birds and the bush to watch me, I tried the boat's shower which opened onto the deck.

For the evening's mooring we anchored about 30 metres from Rosa Island and the western shore. For tea I had oysters, crayfish and roast meat, and sat there watching the tide dropping. A paua boat had come in late and anchored some distance away. About 8 p.m., when the tide was just on the low, Kevin decided to visit them in the dinghy, so I asked to be dropped on Rosa Island.

At the high tide, the sea in Pegasus reaches right up to the bushline. As the tide dropped, rocks and small beaches appeared with alarming speed. I jumped off the dinghy on to a small sandy shore covered with green weed which, in turn, was covered in *Cominella nassoides* out crawling. These were larger than the ones I had found in Paterson Inlet, being about 42 mm. Oysters covered the lower rocks, and mussels those higher up. I started turning rocks which were sharp from the oysters. Buccinulums appeared - nice colour varieties of lined *B. littorinoides* ranging from orange to grey - and, under the biggest rocks out of the water on the small stony beach, some attractive white *B. pertinax*; narrower than the Tikotatahi ones (about 42 x 18 mm) and with thin lips, elongated siphonal canals and axials extending on to the body whorls. Two were found with definite wide-spaced red lines. Ones with perfect lips were not easy to find. I soon ran out of time as the dinghy arrived to take me off my nice deserted island. However, as we were going to remain in this area for another night, I would be able to return to this spot.

Tuesday - the day dawned overcast. Because of the unpredictable weather in these parts, the Hicks family decided that to-day was the day that they would tramp to the top of the Tin Range to meet up with the track their father would have taken so many years before. With our crayfish lunches packed, we found the entrance to a track at the far end of the North Arm and we set off. We had not gone far in the heavy bush when the rain started. The track was muddy, and we were getting rather wet. Also, this particular track had not been used for a long time. Fallen trees slowed our progress as we struggled to get over and under them with our packs on. After an hour of this we were getting very frustrated; we were still in thick bush and now very wet. After two hours Doug examined the map, and we agreed that if we had not met up within the next quarter of an hour with a second track that we ought to have seen by now, then we should turn back. Happily, after 15 minutes we did find the track.

This proved to be a much wider and clearer track and, interestingly, we discovered that the one we had come up had trees across to prevent its use. Progress was now much quicker. It had stopped raining, and we were soon out of the bush and into low manuka scrub. It was about here that we came across the old tramline, so called because it was used by horse and carts to transport tin ore up and down from the mines on the range. The old wooden trails were still partly there; every so often lumps of ore that had dropped off the carts glinted in the light at the side of the track, and I was able to collect some of the better samples.

On we went, following the tramline for another hour or so, up a gentle gradient, eventually coming upon an old man-made dam. Here the tramline petered out. We could see a narrow track zigzagging up to the top of the range which didn't look too far away. We decided to have lunch here - I enjoyed one and a bit crayfish tails. Leaving our jackets to dry over the bushes, we examined the dam which we found was constructed from large boulders and was probably wide enough for the carts to cross. Round the site lay the rusted remains of some metal tools.

Once packed up again, we began the climb. Now we were in low, stunted tussock. Little mosses and flowers began to appear. We could see Pegasus harbour and South Cape, the southernmost tip of Stewart Island, away to the south. Over towards the east lay the valley where kakapos are most frequently found. Eventually the track disappeared, and our way was now marked by piles of stones that we had continually to look for. As the top of the Tin Range loomed closer, the wind increased. At last, after six hours, we were there! We were standing on the edge of the ridge in the midst of gigantic round denuded boulders and we could see the coastline far to the east and west. To the north, the little piles of marker rocks could be seen heading off along the bare rock track that would eventually lead back to Paterson Inlet. Low cloud was sweeping over

us, blocking the view and creating an eerie effect. We could hardly stand up in the wind, and the track to the north was fast being swallowed up.

We decided to retreat before we, too, were swallowed up and, after a quick photo stop, made our descent. On looking back, we could still see the clouds swirling about above us. We now had the long hike back but going down was much easier. We didn't go back on the overgrown track but stayed on the other one. This meant that we came out on the coast in a different place from where the boat would be waiting for us. Doug volunteered to make the trip around the two headlands to find the boat. After 10 hours of tramping, the rest of us were very tired.

Fortunately, we had come out at the Department of Conservation's camp. The huts were empty, and the bunks provided a welcome place to rest. Many had interesting inscriptions on the walls, mainly written by hunters sent in to eradicate the feral cats. Hung from the ceiling in one hut was the frightening skeleton of a cat with teeth bared and claws at full stretch! The sound of the boat's engines soon woke us and we gratefully clambered into the dinghy.

We returned to our mooring off Rosa Island. After our long tramp, I still wasn't too tired to request being dropped back on Rosa Island after tea for the low tide. This time I was able to cover the whole shoreline. No new species were found but I improved on the specimens I had collected the night before. Fortunately, tomorrow we wouldn't be tramping!

Wednesday - a beautiful fine day. We left our mooring and tied up at the remains of the old jetty at the head of the North Arm. This was where the old sawmill had been. While Kevin filled up with water, the rest of us climbed a small track which once had been lined by houses. One house remained. It had almost toppled off its piles and two walls were lying in on each other at crazy angles. The door hung open, but I wasn't prepared to venture inside. When we eventually left in the boat, the solitary house could be seen looking sadly down on the harbour from its commanding site on the hill.

We headed towards the South Arm passing Pearl Island, Anchorage Island and Noble Island which protect the seaward side of the harbour. Halfway along, it was suggested that we go into Cook's Arm, a large stream on the landward side. We were able to take the boat a short distance up it before anchoring. The water was beautifully still. Large flounders could be seen resting on the bottom. Reflected in the water were the three distant peaks of the Fraser Range with the curious names of Gog, Magog and Hielanman. We climbed into the dinghy and set off to explore this picturesque scene. The tide was still low, and I asked to be put off before the water got too marshy. The others continued on. There were several rocks to turn over, and it wasn't long before some buccinulums appeared - nice white *B. pertinax* and line grey and dark orange *B. littorinoides*. The tide turned, I was picked up and we returned to the main harbour.

We then decided to head out to the open sea. Doug's father was keen to view South Cape, the southernmost point of New Zealand. The sea was amazingly calm as we headed out of South Passage, the southern entrance to the harbour, and made our way south along the coast. South Cape was soon in sight. We were still north of it and close to a large bay known as Broad Bay when Kevin decided that this was as far as he felt we should go. The tides were creating a chop, and he wasn't familiar with these waters. It was nice, however, to have seen the bottom of New Zealand at close quarters. On the way back we sailed through an enormous flock of muttonbirds. They were bobbing about on the water all over the place, so much that we almost seemed to be running over them.

Back in Pegasus we cruised the South Arm. As we sailed back past Bald Cone, a massive rock outcrop on the water's edge, Doug suggested that we should try to climb it, but after that tramp of the day before there were no takers! Our mooring for the night was at the far end of Disappointment Cove. On a rock above the mooring someone had placed a sign saying "Resthaven" with a picture of an old rocking chair. This, apparently, had come from a rest home in Invercargill.

The sun was still out so we decided to walk over the hill at the end of our mooring to Broad Bay. We took the dinghy and found a track of sorts. It was fairly overgrown; Doug's father sensibly knotted fern fronds as we made our way along it. After about forty minutes we came out in the open. We found ourselves beside an old hunters' camp with only the remains of a chimney standing amid a seat surround. Within a few minutes we were on the beach. It had nice golden sand and much weed - but it was devoid of shells. The tide was in and there were no rocks to turn. However, it was lovely and hot; I was tempted to try swimming on what was probably the southernmost beach in New Zealand. Far out at sea we thought we could see where our boat had turned about after we had viewed South Cape earlier in the day. On our way back we had some difficulty identifying the track along which we had come, and we very grateful for the knotted fern fronds.

That evening the tide was due to drop to its lowest level for the year. As the water went down, rocks and shore appeared - the nearest being only 20 metres away. Fortunately for us it was still light until about 10 p.m. About an hour before low tide I got someone to drop me on the nearest shore, and the others went off exploring a little further away. The terrain here was different from Rosa Island, being rather murky and slightly muddy. As one walked along, things squelched! Sea cucumbers, left high and dry, hung out at me as I walked by. I saw two eyes looking out of the mud at me, and I realised that I was staring into a partly opened scallop. I picked it up but, never having found scallops high and dry before, thought it must be sick and I threw it out into the water. I had not gone much further before there was clapping sound to my right and another to my left. Scallops were closing all round me! Before long my only shell-collecting bag was filled with my legal limits of shellfish. Excited sounds from other parts of the shore told me that the others were finding the same.

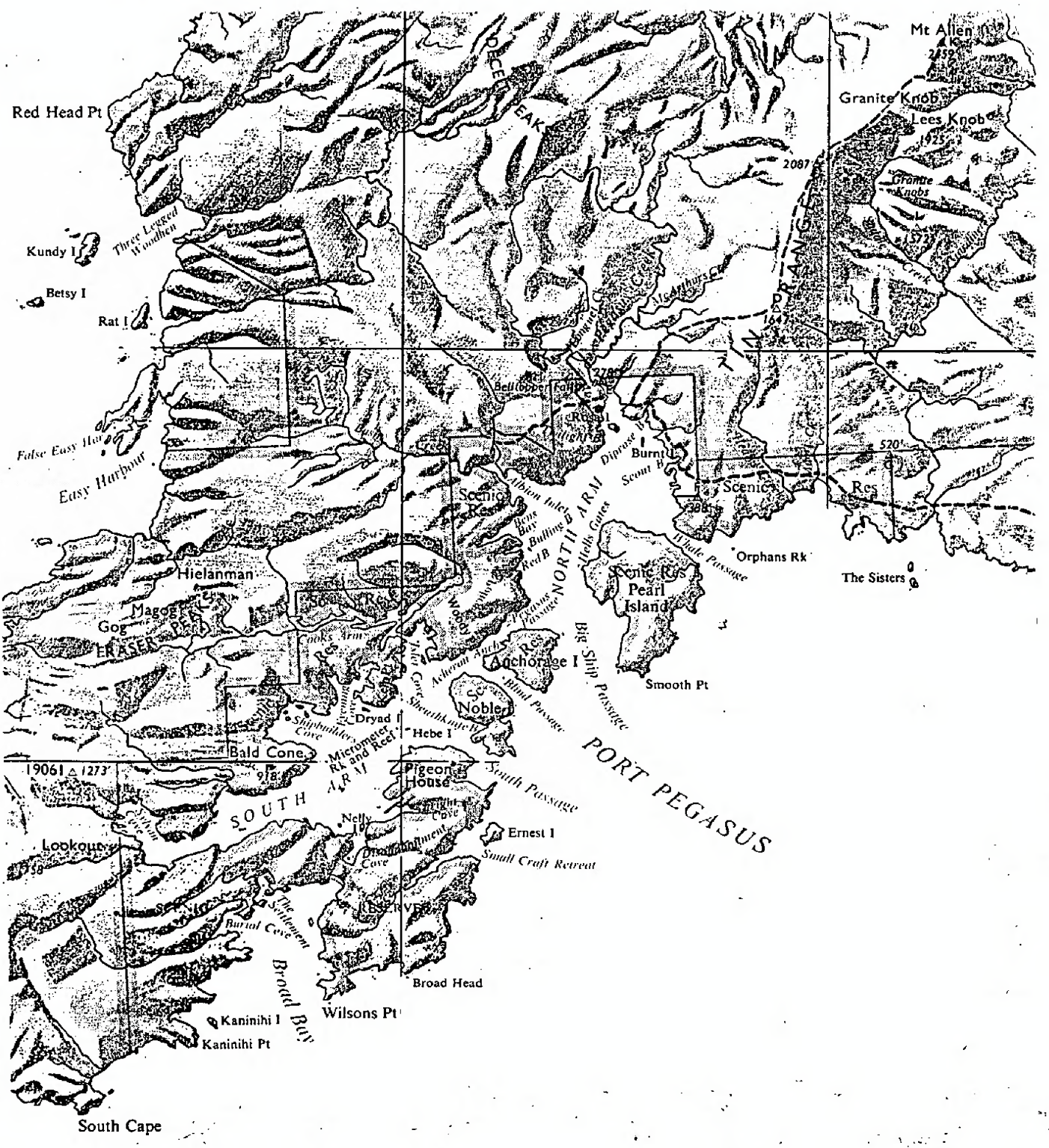
The scallops had, however, wasted valuable shell collecting time. So far I had not seen any buccinulums! I valiantly turned rocks in the now very low water. I found one very large red mussel (*Modiolus areolatus*), more scallops but not much else. I then moved up the shore a bit where some large rocks had been left high and dry. I managed to push over the first one - and there, stuck to the underside, was the most magnificent *Buccinulum* ever! A yellow line *B. pallidum* (no doubt *pertinax* to some people), 50 x 23 mm, with a perfect tip, adult lip and well-formed siphonal canal lay revealed to me. Other large rocks in the same area yielded large grey and large cream *B. pertinax* (about 45 x 22mm), also some orange/red *B. littorinoides*. All too soon darkness fell, and I returned to the boat to find everyone had come with their own quotas of scallops.

Thursday - I awoke to the sound of the ship's engines starting. By the time I had got on deck we were well up the harbour. We were due to be back in Halfmoon Bay on Friday but, not wanting to chance bad weather, it had been thought best to leave to-day. As we turned to leave Pegasus in the semi-darkness, it was time to take a last look. Then we sailed out through Big Ship Passage, the largest entrance to Port Pegasus, and back into the open sea. At least it was calm! I had breakfast as we passed on the seaward side of The Sisters, and then I settled back to enjoy the return trip up the coast. It was just before lunch (and low tide) when we arrived at the Lords River entrance. We anchored for lunch there, and, needless to say, I was soon on the shore. As at Tikotatahi, we were surrounded by sandy beaches. Possibly the spot I chose to land on was too near the open sea - lots of kelp but nothing too interesting in the shell line, just a few small white *Buccinulum littorinoides* and the southern limpet *Cellana strigilis*. I almost trod on a seal! It was time to go.

We sailed back past the entrance to Tikotatahi and around into Port Adventure. This was to be our mooring for the night. As before, we were surrounded by sandy beaches. However, there were people here. We talked to some hunters who invited us into their hut. We then set off in the dinghy to explore the Heron River which runs out into Port Adventure. There was no sound other than our outboard as we slowly moved up the narrowing river channel. Large rata trees in flower hung low over the water on both sides. We seemed to be in lost world! After

about 45 minutes we turned back. I was quite surprised that, other than our kiwi, we hadn't seen much birdlife in the bush during this trip. After tea we went ashore again. However, it was almost dark by the time of low tide, and we again rather close to the open sea for the area to be interesting for us - only some small *B. littorinoides* - I was beginning to think that I'd seen enough of them.

Friday - we left Port Adventure and sailed back past East Cape and Chew Tobacco Point. Off The Neck we decided it was time for a last spot of fishing. Here we were catching the fish the South Islanders call Jock Stewart. We also had an audience of mollymawks bobbing close to the ship and watching us silently. We were due back at midday. As we passed the Acker's Point beacon at the entrance to Halfmoon Bay, it seemed a long time ago that we had passed this point on the way out. All too soon the houses and the wharf were ahead of us. We were back civilisation, and I had 101 buccinulums to clean!



A NIGHT DIVE IN TORY CHANNEL

By Don Watson

Last February we stayed at Te Pangu Lodge, about halfway down Tory Channel - a pleasant place for a holiday, a nice bay sheltered from the south but open to the northerly quarter and lying under quite high hillsides, great sunrise in the early morning, followed by the sight of the first ferry going past at six thirty, the "Aratika" as often as not.

The bay has a fairly short beach with golden sand, and is quite shallow out to the end of the jetty. I could spend hours snorkelling around the bay but, after even one hour, it gets pretty cool in the water. With the incoming flood tide a strong tidal current sets up, and you couldn't swim against this. So it pays to be safe and dive only when the tide is slackening, otherwise the water really boils with movement.

There are a few wekas around the bay also, so if you leave anything lying around your back door, you have to be prepared for the worst to happen - those birds may pinch it! I left my dive boots on the lawn and they even tried to drag these away. There is quite a lot of bird life about and wild pigs in the hills above as well.

Well, the day starts with us thinking it's about time we had a cuppa and something to eat. We need about two hour's gap between eating and going for a dive. It's also time for me to get my underwater camera ready, clean the O rings on its housing, make sure the batteries are fully charged in the night light and the video camera and see that I've got enough tape for about half an hour's filming. It always takes a long time to get everything ready, but there's nothing worse than getting down to the bottom onto to the sea floor and then finding you've forgotten to connect something up! So by now, we've got round to putting our dive suits on, finding a knife to wear, and then carrying all the rest of the gear down to the boat. It's about 9 p.m. by the time we've got it all loaded up, and boy, what a black night it is! We check that everything seems O.K., the engine's right too - so we hit the road, so to speak, down Tory Channel with our navigation lights switched on.

When we reach our diving spot in the right depth, we drop anchor through the kelp with another anchor over the stern just to make certain we don't drift. We put our dive flag up, leave the outboard down in the kelp, and then get our tanks on, check their pressures, put on our weight belts - and then jump in, pass the camera over, decide on the duration of the dive plus a few comments on the temperature of the water as it creeps up the wetsuit - and it's never warm! A quick check on the camera and lights, everything O.K. so, expelling the air from our compensators, down we go into the beyond ...

Once we're on the bottom we check that our buddy is O.K. and that the depth reading is right - then we're away to look for a *Maurea waikanae* crawling along the bottom. The fish are quite quiet at night, lying sleeping or with the light dazzling them so that you can take video right up to touching them. There are a lot of sponges to be seen, all sorts and colours, red, yellow, pink, black, and orange, as well as lace corals. *Maurea punculata* crawls over the sponges feeding on their surfaces, and *Chlamys dieffenbachi* and *C. gemmulata* can found enveloped in the sponges. Hermit crabs wearing *Buccinulum* shells are the most active of the crawling animals to be seen.

I have a light fixed to my camera housing for taking the videos; Donald carries a handheld light so he is really the spotter, looking for subjects for me to video, tapping my shoulder whenever he sees something of interest or something we've been looking for particularly, maybe a *Maurea waikanae* crawling along the muddy bottom leaving a track in the mud in the same style as a garden snail leaves a slimy trail behind it. This one he spotted for me had a very clean

shell, not with the usual green growth over it. I was able to get some quite good closeup shots before he (or she?) headed for cover. It wasn't a very big specimen so I left it to carry on. There's always lots of penions around, too, amongst a mass of dead shell on the bottom, with a few not very good specimens of *Astraea heliotropium*. You have to be careful when diving close to the bottom not to disturb the sediment itself as it rises up in a cloud of silt making visibility rather limited. The depth of the area we were diving in was around 25 metres and the bottom was mainly just mud with sponges. We saw quite a few nudibranchs including a beautiful maroon-coloured one crawling on a red sponge. I had trouble focussing the camera so I collected him and did a video of him in a icecream container on the boat. The problem with the camera seemed to be a matter of condensation with the warmer air inside the lens housing fogging it up.

After about 30 minutes we were starting to get a bit cold, and my light was starting to fade - so it was time to surface. Night diving is really great because there seems to be so much more activity down there. We made our way back through the kelp to the boat. Now Donald takes off his tank while I hang on to it as he climbs aboard. I pass up his gear and mine and then the camera. Once back in the dry he tells me he's feeling pretty browned off because he'd spotted a really large *Maurea waikanae* crawling over a sponge but by the time he'd come back to tell me it had disappeared ... it took Donald a bit to get over that one! Well, we were pretty dry inside, as usual after a dive; we fixed this with a bottle of flat Fanta. Now, it was time to get the anchors up and head off to the bay. Once home, we put the boat on the mooring for the night - and then begins the cleanup, wash all our gear in fresh water, take the camera out of its housing and dismantle everything. Just as big a job cleaning up as getting ready in the first place! Now, we're ready for a cuppa again - on with the jug. It's now about quarter to eleven, and everyone else is asleep. Too bad, we said - let's have a feed before we turn in - so we dished up bacon and eggs with toast and tea - pretty choice too. We had earned it after that strenuous, but enjoyable, dive. Finally, time for the sack - another busy day; they don't take long to go when you're enjoying yourselves!

LYALL BAY - YET AGAIN! A SERIOUS LIGHT-HEARTED LOOK

By Jill Burnet

John Nunn's talk to the Shell Club, and his article in the last issue of *Cookia*, have inspired me to look up my own records of what I have found at Lyall Bay. At one time I was collecting there quite regularly - that was when I was working; I had more time then. It was also before I had a dog. Although dogs love beaches, the City Council does not love dogs on its beaches, including the west end of Lyall Bay which is where my collecting has been done. In addition, dogs, unlike small children, "with sharp eyes close to the ground" to quote John, are not inclined to look for shells for their owners. In fact, a dog's idea of having a good time at a beach is to get as wet, dirty, and smelly as possible; and, since my dog is large, white, and long-haired, that is very wet, dirty, and smelly indeed!

In spite of all this, I do intend to go collecting at Lyall Bay again - one day, when I've got the time. Like John, I have found it to be an excellent and interesting collecting area right on the doorstep. Meanwhile, stirred by John's example, I have dug into my records and boxes of shells to see if, by any chance, I have found anything there that John hasn't - there's plenty, of course, that John has got that I haven't. For a start, I don't pick up shells that I can't see!

To my amazement, and pleasure, I have records of about a dozen species which John and his sharp-eyed children have overlooked.These are listed below. I have followed John's practice of putting the page numbers from Powell's 1979 handbook with each, so any members interested in Lyall Bay can add or attach these to John's list in the May 1991 *Cookia* - and John can send out Amanda, Michael and April with strict instructions to find them for him! All my collecting has been done at low tide, on the west side of Lyall Bay not quite as far round as Arthur's Nose.

GASTROPODA

ACMAEIDAE

P. 47 *Asteracmea suteri*

P. 47 *Notoacmea pileopsis*

P. 47 *Notoacmea helmsi*

TROCHIDAE

P. 53 *Diloma zelandica*

P. 53 *Diloma subrostrata*

P. 56 *Micrelenchus dilatatus*

CALYPTRAEIDAE

P. 149 *Zegalerus tenuis*

BUCCINIDAE

P. 198 *Buccinulum pallidum*

TRIMUSCULIDAE

P. 291 *Gadinalea conica*

SIPHONARIIDAE

P. 292 *Siphonaria zelandica*

BIVALVIA

MYTLIDAE

P. 374 *Modiolarca impacta*

UNGULINIDAE

P. 388 *Felaniella zealandica*

PSAMMOBIIDAE

P. 418 *Soletellina nitida*

NEW PUBLICATION AVAILABLE

A systematic checklist of the species of Brachiopoda living in New Zealand waters with detailed citations of all publications dealing with them has recently been published by the Hutton Foundation. This work was originally presented as one of the working papers of the 2nd International Brachiopod Congress held in Dunedin in 1990. It is now available from the Hutton Foundation, P O Box 11-856, Manners Street, Wellington 6034, for $7.50 (including GST and postage). The full title is:

"The Living Brachiopod fauna of the New Zealand Region: A Systematic Reference List". By Elliot W. Dawson. *Occasional Papers of the Hutton Foundation, New Zealand* No. 2: 60 pages.

MAHIA PENINSULA - EASTER 1992

By Helen Macfarlane

A group of Club Members, Don Watson with his mother, sister Heather and son Donald, Bev and Barbara Dunn, Jenny Raven, Pat Lakeman, Graham Aamodt and Helen Macfarlane made Mahia Peninsula their destination. Kris Woods and her husband Roger joined in for short periods.

Friday 17 April - After a night in Hastings, Graham, Pat and Jenny picked me up from my sister's at Maraekakaho and we reached Mahia Motel by late morning. It was a wonderful sunny day, and we looked forward to an excellent weekend for shelling and fishing. Bev and Barbara had arrived earlier and were off collecting. Low tide was about midday so our gear was dumped in the motel and we were off to the southern end of Mahia Beach. I explored Taylor's Bay while Jenny, Pat and Graham clambered round the knob, finding *Buccinulum colensoi* under the boulders, both live and inhabited by hermit crabs. After lunch, and meeting up with Bev and Barbara, we went to the other side of the Peninsula, in the Aurora Point area, where we found some *Trivia merces* and *Mitra carbonaria* (worn). Don and his party arrived during the afternoon in Watson's Garden truck complete with their diving gear. Kris and Roger, who were staying in Wairoa, called in and we arranged to meet up with them the next morning. Don and his son did a night dive, and Jenny, Pat and Graham and I went for a beach walk which proved enjoyable on such a fine evening.

Saturday 18th - It was disappointing to wake up to rain and a cold wind. But, undaunted, we all, Pat, Graham, Bev, Barbara and I, met Kris and Roger at Oraka Beach at 10.30 a.m. and we then walked around to the Old Man's Hat where we found golden limpets, *Cellana flava*, some with black markings. On the way back Pat and Jenny stopped at Taylor's Bay where they found a good supply of *Buccinulum colensoi* at extreme low tide. After lunch at the motel we went back to Auroa Point with Bev and Barbara. Graham fished and caught two kahawai, which we enjoyed for Sunday's breakfast, and a trevally later used for bait.

Sunday 19th - wet again! An early morning walk along Opoutama Beach by Pat produced *Xenophalium labiatum inseperatum* - so it was back to Opoutama for a thorough search and more *Xenophalium*. After lunch, a trip to Mahunga Bay (on the eastward side of the isthmus) was very unproductive. Later, Jenny, Pat, Graham and I returned to Auroa Point, where Graham fished and the rest of us did not find a lot, although over the three days we did find quite a lot of washups in this area. The reefs along this part of the coast are extraordinary, fairly flat mudstone for the most part, some covered with coralline algae and some bare, quite easy to walk on and extending a long way out at low tide. Don didn't appreciate them so much as it was difficult to find water deep enough for diving. Home for tea ... Don and his son had been diving, in fact, and some crayfish were greatly enjoyed by us all!

Monday 20th - the last day at Mahia for our group! Bev and Barbara stayed on for another day or so before heading up the East Coast in their caravan. The Watson party stayed until Tuesday. The tides were getting later (and the southerly stronger and colder), so there was not much of Opoutama Beach showing when we had a last look for *X. labiatum*. Graham took us to see a little cove just west of Opoutama where old railway wagons retire - quite a sight! We made a detour to Waipatiki Beach - steep, sandy and quite unproductive -before Graham, Pat and Jenny delivered me back to Maraekakaho in the late afternoon. A very enjoyable weekend - in spite of the weather.

The Easter 1992 highlights were:

Taylor's Bay -

Buccinulum colensoi (banded, blackberry and plain), live and with hermit crabs.

Oraka Beach to Old Man's Hat -

Cellana flava (good colour and some with black markings)

Trivia merces 1

Auroa Point -

Trivia merces 12

Philippia lutea 3

Mitra carbonaria 3 (worn)

Buccinulum linea fuscozonatum (reasonable condition)

Murex octagonus

Cominella excoriata tolagaensis (worn)

Opoutama Beach -

Monoplex parthenopeus

Xenophalium labiatum inseperatum 24 (4 live)

From diving -

Cabestana waterhousei

Maurea tigris

[NOTE - look up Jenny Raven's article in the last *Cookia* (May 1991) for a map of Mahia Peninsula showing the localities which I've mentioned].

TO MAHIA PENINSULA WITH THE SHELL CLUB 1992

By Don Watson

Easter weekend saw us, Mum, Heather, Donald and Don Watson leave Otaki at 6 a.m. on Friday the 17th of April. After a cuppa with relatives at Waipukarau, we were into very thick fog at Dannevirke, and we nearly had an accident at the railway crossing - not a very good start. We didn't run out of the fog until just before Hastings. At Wairoa we stopped for some provisions and diesel for the truck. Lunch was at the Waikokopu estuary, about halfway between Wairoa and Mahia; then on to Mahia where we arrived about 1 p.m. in beautiful weather. Once we'd got our gear unpacked and into the motel, we went for a drive to check out collecting sites, and we came across the girls looking for those *Trivia merces.*

That night, Donald and I went for a night dive at the south end of Taylor's Bay. We parked the truck on the side of the road, leaving the side lights on so we could guide ourselves back, but there was a full moon to help us as well. It was only about 50 metres to carry our gear to the edge of the water. We dived at about 200 metres offshore but the water was only about three metres deep there and fairly dirty, the bottom being sandy between papa rocks. We managed to take a bit of underwater film footage. There were plenty of penions and cookias but very poor fish life. It was all guess work because I didn't have any chart to show what the bottom depths might be.

The next day turned out wet and miserable so we went for a drive to the north side of the peninsula up to the top of the road. The road was loose metal and the truck slipped in a few places. There were some nice quail and turkeys around. From the top we could see, between showers, some good-looking diving spots, but we really would have needed a boat to get out into cleaner water. Once down the hill and back at sea level again, we had a dive east of where the fishing boats were moored. The swells weren't so big there so we thought the water might be deeper. I prepared the camera, got dressed up in my diving gear and walked down to the water where I put my fins on. The two of us wallowed in the water like a couple of seals, but was it dirty! We swam about 30 metres out and went down. It was only three metres or so deep and the bottom was pure sand, so back to the rocks for a look along the ledges. The visibility wasn't too good - we could only see about a metre in front of us so what I had to do was to rub my hand on the upper side of the ledges and then scoop up anything that fell off. It was like having a lucky dip! My buddy Donald felt he'd had enough so went ashore. Being a bit more persistent, I stayed for a while, and when I came up, to my dismay, there was a heap of rod fisherman looking at me. I'm sure they hadn't been there before. Donald took some of my gear, and, to my surprise, amongst the shells was a small *Cabestana waterhousei* - so it hadn't been a waste of time after all. We then moved back down the road a bit and went snorkelling out to some rocks about 400 metres out from the shore where we found a *Maurea tigris.* That was enough for one day, so we went to the motel for a clean up and wash of the diving gear.

Wet again next day, so it looked as it wasn't going to clear up. But, after a little while, it did - so I went next door and said to the girls that I couldn't sit around all day so I'd be off for a dive somewhere. It started raining again but I told our crew that we were going to drive to the end of the road on the west side of the peninsula. We got to the end of the road safely despite the truck skidding quite a bit. There we found a notice on the gate informing us that no trespassing and no diving permitted, so Donald and Heather walked over a couple of ridges to get some photographs of Portland Island. On the way up we had picked out a place for a dive so we went down to Dudley's Beach, got into our diving gear and walked about 150 metres to the beach. There was quite a bit of surf and a good chop on the water, so it was a hard swim over to the rocks. The tide was coming in, however, so we hoped for an easier return trip. We looked

under stones, on ledges, in caves, and so on, searching for *Cabestana spengleri* but never found any, only a *Buccinulum* or two in addition to 10 crayfish. Deciding that there was nothing worth videoing, we left the water, having had about an hour's exploration, and grunted our way up the track to the truck. We'd hardly known we had been in the water because, after our experiences diving in Cook Strait, it was just so much warmer here. We were pretty hungry now, feeling overworked and underfed, so off we drove to the motel where we found a new way of washing our diving gear by using the rainwater coming through the downpipe off the roof, quite handy - and then we cooked those crayfish for tea!

The next day, Monday, it was raining again. Jenny, Pat, Helen and Graham were making their way home, doing a bit of collecting on the way. We said our goodbyes, and then we went off to the north side of the peninsula to do some collecting on the beach since it was blowing pretty strongly from the south. Bevan and Barbara came along and joined us. On hands and knees, we came across two *Trivia mercea*. The water was still dirty so that gave us a break from diving or snorkelling.

Tuesday was our day to go home, we got up pretty early and had everything packed up by 8 a.m. and were ready to be off. It was now blowing a gale. We went down and videoed a fishing boat on a big self-driven trailer which was needed specially to take the boat about 400 metres into the sea to reach water deep enough to float it off. The sea here was just too rough for us with not a thing on the beach. Off, then, to Mahunga Beach. The sea was rough here, too, but a walk along the sand resulted in a *Dosinia anus* with interesting markings.

Well, we hit the road home now. We'd had a great experience, finding out how weather can turn bad, but, all the same, it was a good trip and enjoyed by us all.

A TRIP ROUND THE BAY OF PLENTY AND ON TO THE COROMANDEL: OR, WHERE HAVE ALL THE SHELLS GONE?

By Bevan Dunn

After a damp, windy, and generally bleak Easter at Mahia, we were not at all sad to head north on the Tuesday morning. By the time we had reached Gisborne we were in the sunshine, and feeling happy (and warm) again. We reached Te Araroa soon after lunch and booked into the motor camp which is about six kilometers from the town. From the camp, it's about a 10 minute walk over the paddocks to the eastern end of the beach. Regrettably, we did not see a single shell along the several hundred metres which we walked. We also had a good look at the small estuary that comes out at the beach hard against the cliffs. Nothing! - not even a sand snail or half a bivalve shell ... Because of the very strong surf we didn't try to get to the rocks under the cliffs on the other side of the stream. So back to the camp and our car, and off to the reefs on the way to East Cape we went.

It was now about 3 p.m. and clouds and cold breezes had arrived. We stopped at a likely-looking stretch of reef with some sandy beach behind it. First shock - not a trace of shell rubble like we'd found at Mahia. All we saw consisted of a few very beach-worn specimens of *Cookia* and some other things - but nothing at all worth picking up. However, the sandstone parts of the reef were liberally dotted with the bright orange of *Cellana flava* - no shortage of these at least. We didn't need to take live ones; there were vast numbers of them, many freshly empty, on the sand a little further on. I didn't try to go to the edge of the reef because of the surf.

The following morning we went to Hicks Bay. This, at least, had a few tuatua halves and even one or two mactrid triangles but the tide was coming in rapidly, driven by an even more awesome surf than we'd seen the day before, so back we went to the camp for a cuppa. In the afternoon we went right to the foot of the lighthouse hill but it started to rain so we didn't climb up. On the way back we stopped at Hautai Beach where we found more orange limpets and an odd *Cookia* or two. Visits to a couple of other places as well yielded results just as the day before.

Next day we hooked on the van and made the short run to Waihao Bay. The motor camp here is across the road from the beach so no time was lost exploring it. The day was beautiful and the sea almost calm, but no shells worth collecting. A few freshly-emptied but small *Spisula aequilateralis* were all we saw at the eastern end of the beach, and even less at the western end. In the afternoon we walked around to Orete Point and the beach beyond it. This beach is mostly fine shingle interspersed between rocky ledges running out into the water. We found large numbers of catseyes but, strangely enough, no trace of the shells they came from. As we came back round the point, a close inspection of the reefs showed vast numbers of *Nerita* but little else. We found a few small patches of shell rubble as well. The largest of these didn't appear to have had salt water over it for some time and was probably deposited there by a previous storm. However, about an hour's search revealed three *Trivia* - old and sad-looking ones to be sure but they did prove they exist somewhere out there.

We stopped briefly at the Opotiki beaches - nothing worth bending over for. A vast number of *Dosinia* shells were noted, mostly in pairs and obviously freshly vacated. Did something out there have a feast, or what? It'd be interesting to know. We didn't bring any back because bigger specimens are available at Paraparaumu for those that want them.

Our next major stop was at Mount Maunganui. We had been there before with disappointing results but we had hopes of better things this time. No such luck, either on the beach or on the rocks! Again, most of what we saw here can be found much closer to home although not in such huge numbers as *Struthiolaria* and *Umbonium*. Between the little joined-on island and the

rocks a few hundred metres on were a large number of largish scallop valves mostly black in colour. We had just seen the television programme about Motiti Island and its large scallop beds so we presumed that this was where these valves had come from. As we had come to this place to visit friends, we did not spend as much time on the beaches as we would have liked. We didn't visit Tauranga's inner harbour (is it all mudflat?) at all, next time perhaps.

After the weekend and a wet Sunday, our travels took us over the hills to Whangamata, an easy morning's run. The weather was sunny and warm, so off we went to the beach. First impressions were that we might just as well have stayed at home. I bent down to inspect a small patch of shell rubble and, lo - sticking out of the sand were three wentletraps only a few centimetres apart. From then on I must have crawled several hundred metres on hands and knees. Fortunately the beach was deserted, otherwise someone would probably have sent for the padded van! Meanwhile Barbara had wandered off along the beach and away from the shelter of the island. In this area there was a thin strand line. Lots of the usual common things including masses of *Struthiolaria* and *Umbonium*. Most interesting was a lot of juvenile *Struthiolaria*, many only a few millimetres in size.

We did a side trip to Hot Water Beach but found little of any note there except for large numbers of very tiny *Chlamys* valves, most of them coloured vivid orange. We wondered if anything in these waters ever managed to grow to maturity.

After several days in this area, we moved over to the west side of the peninsula. This coast is mainly rock and shingle, with the main shells being empty rock oysters - so little collecting was done. However, we did do a trip to Cape Colville where there is a sandy beach. Regrettably, the weather now started to deteriorate and the forecast was poor - it was now south to home!

Sadly, in all our wanderings, we didn't see a trace of a volute or a helmet. Nevertheless, the scenery and surf up there is some compensation.

PUNCTID SNAILS - AN INTRODUCTION TO PANBIOGEOGRAPHY

Frank Climo's talk to the Wellington Shell Club on 25 June 1987 has been published, under the title "Punctid Snails - A path to panbiogeography", as one of the papers in a special issue on Panbiogeography in the Italian journal *Rivista di Biologia.* (vol. 81, No. 4, 1988). A copy is now available in the Shell Club's library. It provides a most useful introduction to the value of the small land snails of New Zealand in developing the concept of Panbiogeography as a contemporary means of explaining the distribution of animals and plants in contrast to the traditional "neo-Darwin" approach first mooted in New Zealand by F.W. Hutton and later extended by Sir Charles Fleming. A special issue of the *New Zealand Journal of Zoology* (Vol. 16, No. 4, 1989) gives a comprehensive view of how an appreciable number of New Zealand biologists are seeking new ways of explaining the distribution patterns of the particular organisms which they are studying. A review of the life work of Leon Croizat, pioneer of Panbiogeography, formed a special issue of *Tuatara* (Vol.27, No.1) in August 1984. Both of these publications are essential reading towards an understanding of the novel biological synthesis which the concept of Panbiogeography seeks to provide.

This issue of *Cookia* now gives a sequel to Frank's earlier thoughts; he would welcome any "feedback" which readers may like to give him before he extends this paper for international publication.

SOME TASMAN PUNCTID LAND SNAIL (PULMONATA: PUNCTIDAE) MARGINS AND CENTRES - A COLLAGE

By Frank Climo

INTRODUCTION

The way that several genera of punctid land snails lap, from the west in nested arcs, over emergent New Zealand and from the southwest over Lord Howe Island geography is summarised in maps (Figs 1-14). The main massings of shell diversity in the closely-knit group of taxa viewed involve the Raglan-Kawhia coast, Northwest Nelson, northern Northland and the Three Kings Islands, Lord Howe Island and the New Zealand subantarctic islands.

Trends towards smallness and ribbing, or towards flatness and peripheral keeling or towards globularity and large size are all apparent in the maps.

New taxa are not named in this article but the adopted classification is summarised following the presentation of the drawings (using "n. gen.", "n.sp.", etc.). The drawings are based on items in the Museum of New Zealand archive (Department of Natural Environment), from material borrowed from the Australian Museum, Sydney, and from the Auckland Institute & Museum.

ANNOTATED INTRODUCTION TO FIGURES 1 to 14

Fig. 1: The dispersal of *Taguahelix* (s.s.) *viridula* (Suter), holotype, shell drawings and introduction to place names.

A, *T. viridula* dispersal, inside hatched lines; 1, Three Kings Islands; 2, North Island; 3, South Island; 4, Stewart Island; 5, Snares Islands; 6, Auckland Islands; 7, Campbell Island; 8, Antipodes Islands; 9, Chatham Islands.

B, disperal database and shell drawings of *T. viridula*. Scale line 1mm.

Fig. 2: The dispersal of *Taguahelix* (s.s.) campbellica (Filhol), M25444, with shell drawings, and biogeography of *T.* (s.s.) n. sp.1 (filled circles in hatched line).

A, *T. campbellica* dispersal, inside hatched line. B, dispersal database and shell drawings of *T. campbellica* (filled squares in stippled line). Scale line 1 mm.

In terms of geographic coverage of the New Zealand archipelago, *T. viridula* (Fig. 1) extends much further east in the south of its range than does *T. campbellica* (Fig. 2).

Fig. 3: *Taguahelix* (s.s.) n. sp.1, holotype, M78525, dispersal database, filled circles inside hatched line, and shell drawings. *T.* (s.s.) *campbellica* indicated by filled squares inside stippled line. Scale line 1 mm.

Fig. 4: *Taguahelix* (n. subgen.1) n. sp.1 (A, filled squares in hatched line) and *T.* (n. subgen.1) n. sp.2 (B-E, filled circles in stippled line) dispersal databases and shell drawings.

A, *T.* (n. subgen.1) n. sp.1, holotype, M69910, Maunganui Bluff.

B-E, *T.* (n. subgen.1) n. sp.2; B, Copperstain Creek; C, Mt Arthur; D, The Castles, Aorere Valley, M57979; E, Fox River Cave, Paparoa National Park, M70251. Dashed arrows indicate a range of shell form between the end-points illustrated. Scale line 1mm.

Taguahelix (n. subgen.1) n. sp.2 is very variable in shell shape.

Fig. 5: Dispersal databases and shell drawings of *Taguahelix* (n. subgen.1) n. sp.3 (A), open circles in hatched line, *T.* (n. subgen.1) n. sp.4 (B-D), filled circles in stippled line.

A, *T.* (n. subgen.1) n. sp.3, holotype, M55172, Waitomo;

B, *T.* (n. subgen.1) n. sp.4, Waterfall Gully, Maunganui Bluff and Mt Ngongotaha, respectively. Scale line 1 mm.

Note that small size and axially corrugate shells node between the Kawhia-Raglan coast and Waitomo. The picture is completed by including Fig. 6A.

Fig. 6: The geographic placement of the main massing of *Taguahelix* (n. subgen.1) and the New Zealand margin of *T.* (n. subgen.2).

A, *T.* (n. subgen. 1) *elaiodes* (Webster), M54236, Waiuku, filled circles enclosed by hatched line, with shell drawings;

B, T. (n. subgen.2) *powelli* (Climo), paratype, M23251, Poor Knights Islands, open circles linked by solid line, with shell drawings;

C, *T.* (n. subgen.2) n. sp.1, M47219, Pillar Point, Cape Farewell, filled squares in stippled line, with shell drawings of holotype. Scale line 1 mm.

Fig. 7: Dispersal database and shell drawings of N. gen. 1 with the tracks of *Taguahelix* (n. subgen.2) species indicated by a solid thick black line (dashed part pointing to a Lord Howe Island massing - Fig. 8) (*powelli*) and the closed hatched line (n. sp.1).

A, N. gen.1 n. sp.1, Maunganui Bluff, filled square enclosed by open hatched line, with shell drawings of holotype;

B, N. gen. 1 n. sp.2, M48684, Herekino Gorge, filled circles in solid stippled line, with shell drawings of holotype. Scale line 1mm.

Note that the orthalacid land snail subgenus *Placostylus* (*Maoristylus*) occupies the *Taguahelix* (n. subgen.2) *powelli* track on its path to Lord Howe Island (Fig. 8).

Fig. 8: The *Taguahelix* (n. subgen.2) track to Lord Howe Island (solid black line and short arc in N.W. South Island) and N. gen.1 (solid hatched line), some place names, and a profile display of related taxa on Lord Howe Island.

A, "*Paralaoma*" *abjecta* (Iredale), holotype, Australian Museum C63466;

B, *Taguahelix* (n. subgen.2) n. sp.2, holotype, Australian Museum C 121937;

C, *T.* (n. subgen.2) n. sp.3, holotype, Australian Museum C91237;

D, *T.* (n. subgen.2) n. sp.4, holotype, Australian Museum C63486.

1, Macquarie Island; 2, Lord Howe Island; 3, Norfolk Island; 4, Kermadec Islands. Scale line 1mm.

Taguahelix (n. subgen.2) species main mass on Lord Howe Island and are morphologically flanked there by related taxa. Should it be shown that *Allenella* is informatively grouped as a subgenus of *Taguahelix*; then, by nomenclatural priority, the former takes generic priority as label. At this time decisions are still to be made.

If the form recombinations of Fig. 8B-E are examined in more detail, the limitations of binomial classifications become clear.

Whereas flatness and keeledness in Fig. 8B-D serve to involve northeastern New Zealand and Lord Howe Island in *Taguahelix* (n. subgen.2) as a distinct formal unit from "*Paralaoma*" *abjecta* (Fig. 8A) or *Allenella formalis* (Fig. 8E), when size, coiling and density of teleoconch

spiral corrugations are examined in Fig. 8B-E the following becomes obvious:-

i. Fig. 8C recombines the top whorls of Fig. 8E with the same number from the base of Fig. 8D;

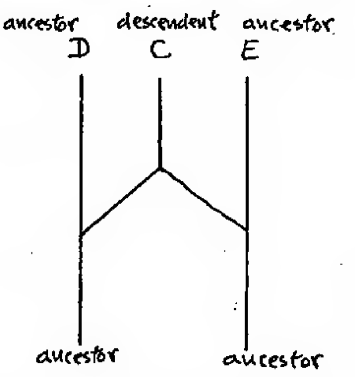
ii. the size of Fig. 8C is determined by the available base of Fig. 8D;

iii. Fig. 8C looks "juvenile" [i.e. few whorls, sharp keel and large aperture] because of the growth constraints (laws of growth) reasoned in i. and ii.;

iv. Fig. 8C is "hybrid" with regard to Fig. 8D and Fig. 8E;

v. the gastropod spiral is divided by a peripheral "fault" between an upper and a lower "plate".

These observations are expressed in Text-figure 1, below -



Text-fig.1

Recombinative summary of Fig. 8C-E

Fig. 9: Dispersal database and shell drawings of species of N. gen.2 to show a south-eastwards extension of the *Taguahelix* (n. subgen.2) margin shown in Fig. 8.

A, dispersal of N. gen.2, solid hatched line;

B, N. gen.2 n. sp.1, holotype, M55454, thick dashed line, and shell drawings;

C, N. gen.2 *rimutaka* (Dell), holotype, filled cicles in stippled solid line, and shell drawings. Scale line 1 mm.

Notice that whereas the dispersal of N. gen.2 *rimutaka* plunges into the sea at Wellington, its geographic extension into the Marlborough Sounds is from Northwest Nelson and not from across Cook Strait. This observation is reinforced in Figs 4-7. The Wanganui Basin is thus encircled by form, pincering together in southeastern Cook Strait.

The next set of illustrations (Figs 10-14) summarises the dispersal of four genera of snails that are distinguished by having hairs on the radial ribs. However, not all species in some of these genera necessarily have hairs (see Figs 10 & 14).

Fig. 10: Dispersal database and shell drawings of species of N. gen.3.

A, dispersal of N. gen.3 *serratocostata* (Webster), solid hatched line and N. gen.3 n. sp.1, black areas linked by solid lines;

B, N. gen. *serratocostata* dispersal database and shell drawings, M23262, filled circles in stippled line;

C, N. gen.3 n. sp.1, dispersal database and shell drawings, holotype, Orongorongo Valley, filled circles in stippled lines linked by open dashes. Scale line 1 mm.

The hairs so characteristic of N. gen.3 serratocostata are reduced to basal remnants (not showing in the scale of shell drawings in Fig. 10C) in N. gen.3 n. sp.1, this latter species with a more "condensed" geographic range. All live-taken N. gen.3 n. sp.1 had detritus stuck to the shell.

The next four illustrations (Figs 11-14) concentrate upon a most western arc of hairy punctid snails that extends from the Three Kings Islands to the Auckland Islands. Other hairy punctid snails are complementary in biogeographic expression but are not included in this article. The most western arc mentioned was introduced in an earlier article (Climo, 1988, Fig. 3).

Fig. 11: Dispersal database and shell drawings of N. gen.4.

A, N. gen.4 minuta (Gardner), paratype, inside stippled line, and shell drawings;

B, N. gen.4 regia (Gardner), M29329, Great King Island, inside hatched line, and shell drawings. Scale line 1 mm.

Fig.12: Showing delineation (open hatched line) of the western arc illustrated, the position of taxa in it as far south as the Snares Islands, and shell drawings of the taxa involved.

A, N. gen.4 regia, dashed line, N. gen.4 minuta, solid line, N. gen.5 n. sp.1, stippled solid line, N. gen.6 n. sp.1, double line and shell drawings of the latter, holotype, M46063;

B, N. gen.5 n. sp.1, filled circles in stippled line, holotype, Westhaven Inlet, and shell drawings. Scale line 1 mm.

N. gen.6 n. sp.1 has a weak zig-zagged colour pattern that does not show in the alcohol-bleached illustrated specimen. This pattern is, however, lost completely on shells of Auckland Islands species of N. gen.6 (Figs 13 & 14).

Fig. 13: Showing delineation (open hatched line) of the western arc, the geographic position of the Auckland Islands (solid stippled line), drawings of N. gen.6 hirsutus (Powell) and a summary of Auckland Islands N. gen.6 biogeography (map common to Fig. 13B and Fig. 13C).

A, delineation of the western arc involving the Auckland Islands;

B, N. gen.6 hirsutus, holotype, TM1233;

C, N. gen.6 hirsutus, M8332.

Auckland Islands map - N. gen.6 hirsutus, open circles linked by solid line; N. gen.6 n. sp.2 (Fig. 14B), dotted lines linked by dashed lines; N. gen.6 n. sp.3, filled circle.

Biogeographic node at northern Auckland Island, heavy dashed line; 1, Enderby Island; 2, Port Ross; 3, Auckland Island; 4, Adams Island. Scale line 1 mm.

Yaldwyn (1975) assembled information from "The Auckland Islands Expedition 1972-1973", and Heads (1986) discussed the panbiogeography of these islands.

Fig. 14: Dispersal database and shell drawings for Auckland Islands species of N. gen.6.

A, N. gen.6 n. sp.2, holotype, M79114, filled circle, and shell drawings;

B, N. gen.6 n. sp.3, holotype, dotted circles linked by dashed line, and shell drawings. Scale lines 1mm.

In only one other example in New Zealand snails is there found at the same place, in the same genus, species with a few hairs (e.g. N. gen.6 n.sp.3) and with many (N. gen.6 hirsutus). At the Auckland Islands, N. gen.6 n. sp.2 illustrates a hairless species in which all the hairs have been "used up" in the n. sp.3 and hirsutus expression. The other example is provided by Suteria ide (Gray) and S. raricostata Cumber, Awakino Gorge-Waitomo. The absence of a highly distinguishable chararacter-state is a feature of a biogeographic node.

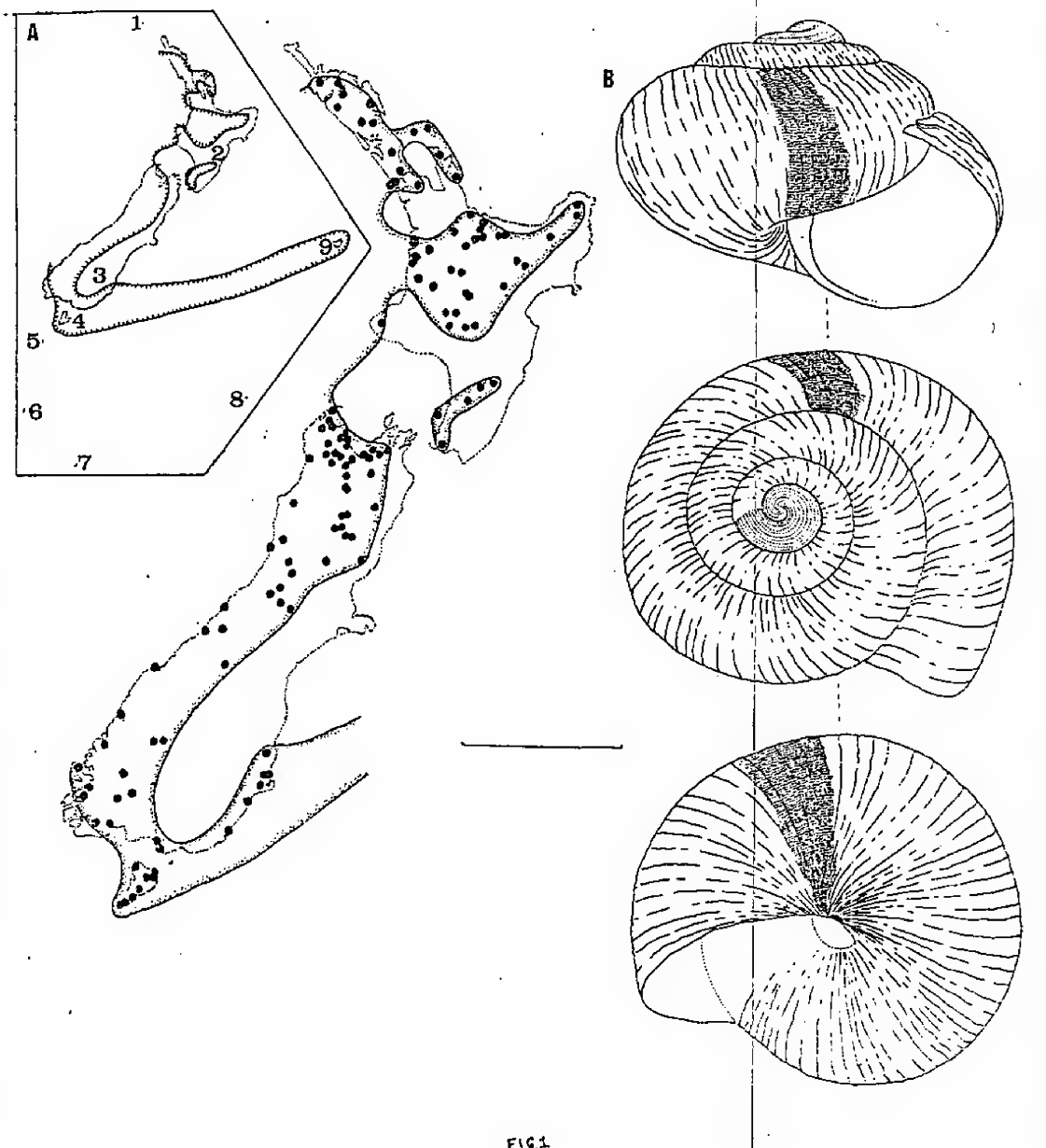


FIG.1

Fig. 1. The dispersal of *Taguahelix* (s.s.) *viridula* (Suter, 1909), holotype, shell drawings. Scale line 1 mm. - See text for details.

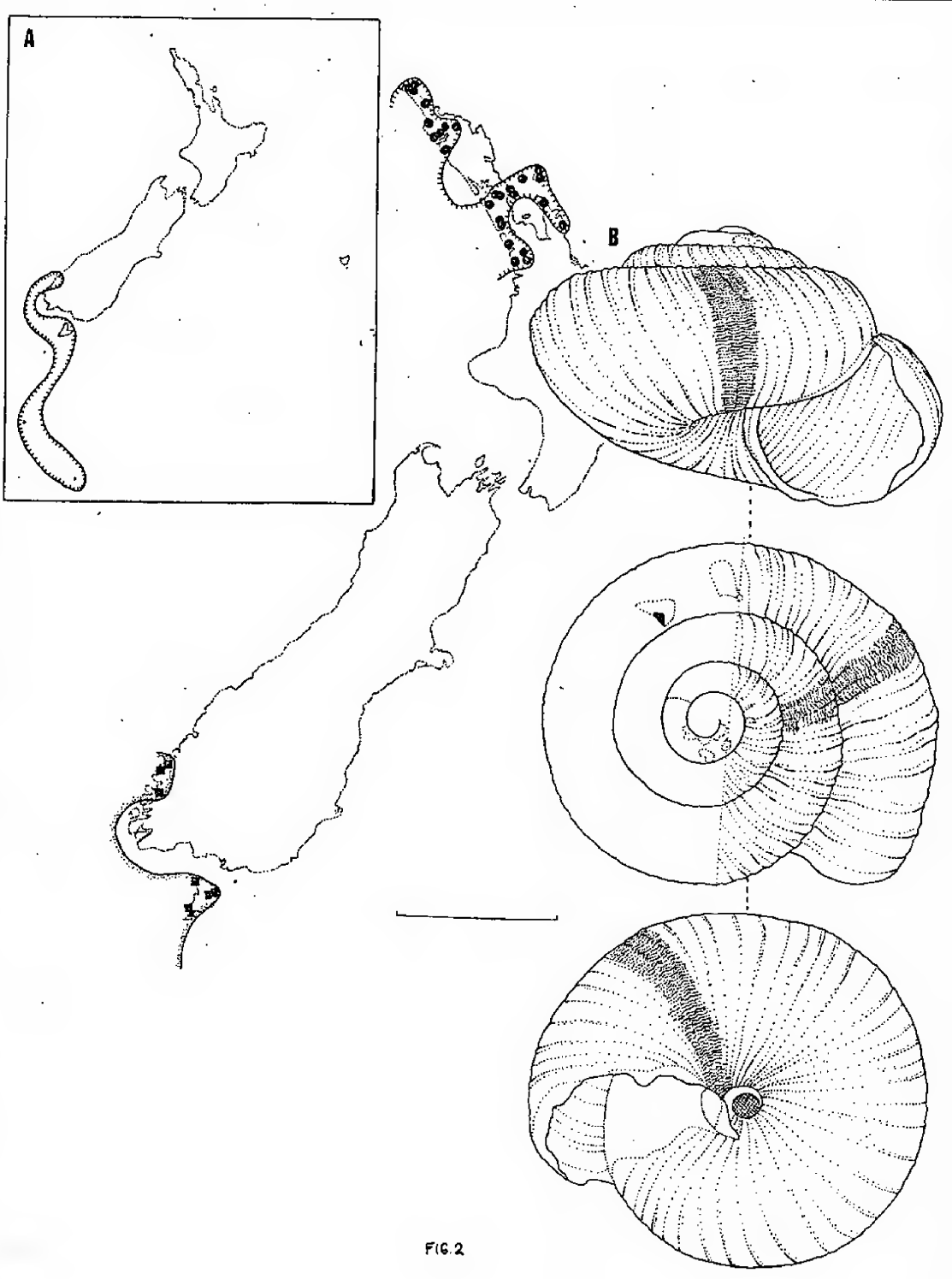


Fig. 2. The dispersal of *Taguahelix* (s.s.) *campbellica* (Filhol, 1880), M 25444, with shell drawings, and biogeography of *T.* (s.s.) n. sp.1 (filled circles in hatched line).

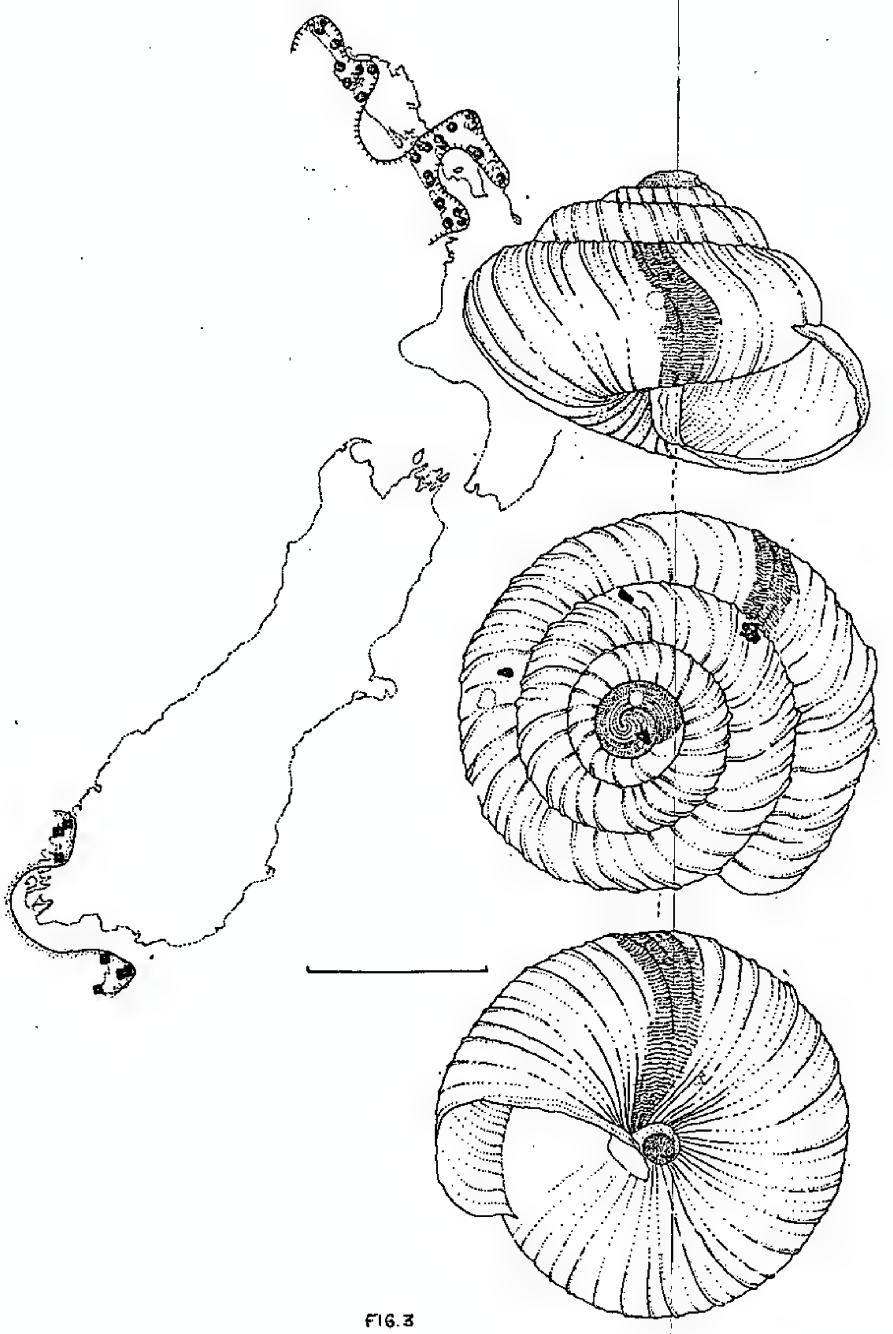


Fig. 3. *Taguahelix* (s.s.) n. sp.1, holotype, M 78525, dispersal database, filled circles inside hatched line, and shell drawings. *T.* (s.s.) *campbellica* indicated by filled squares inside stippled line. Scale line 1 mm.

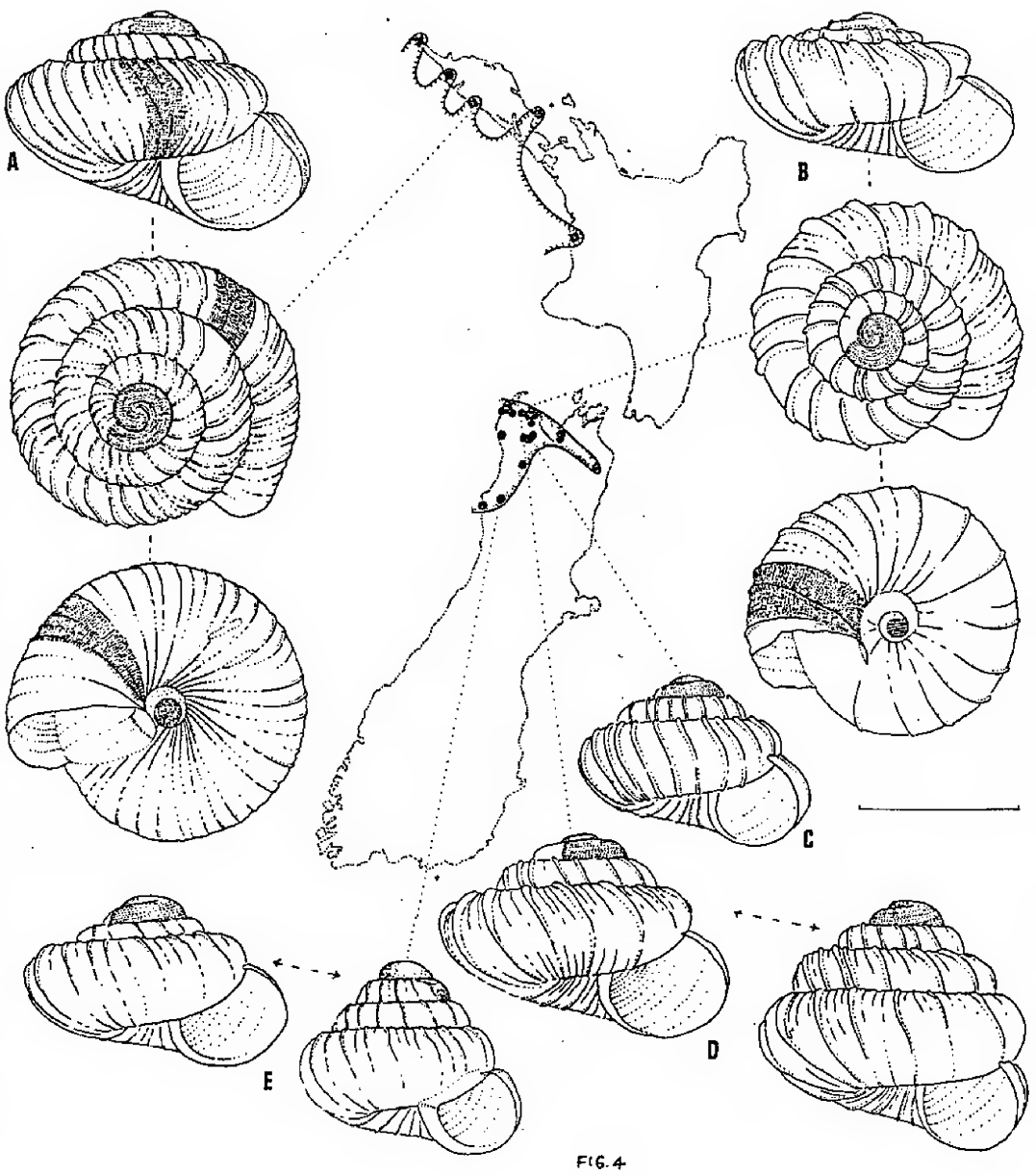


Fig. 4. *Taguahelix* (n. subgen.1) n. sp.1 (A, filled squares in hatched line) and *T.* (n. subgen.1) n. sp.2 (B-E, filled circles in stippled line) dispersal databases and shell drawings. Scale line 1 mm.

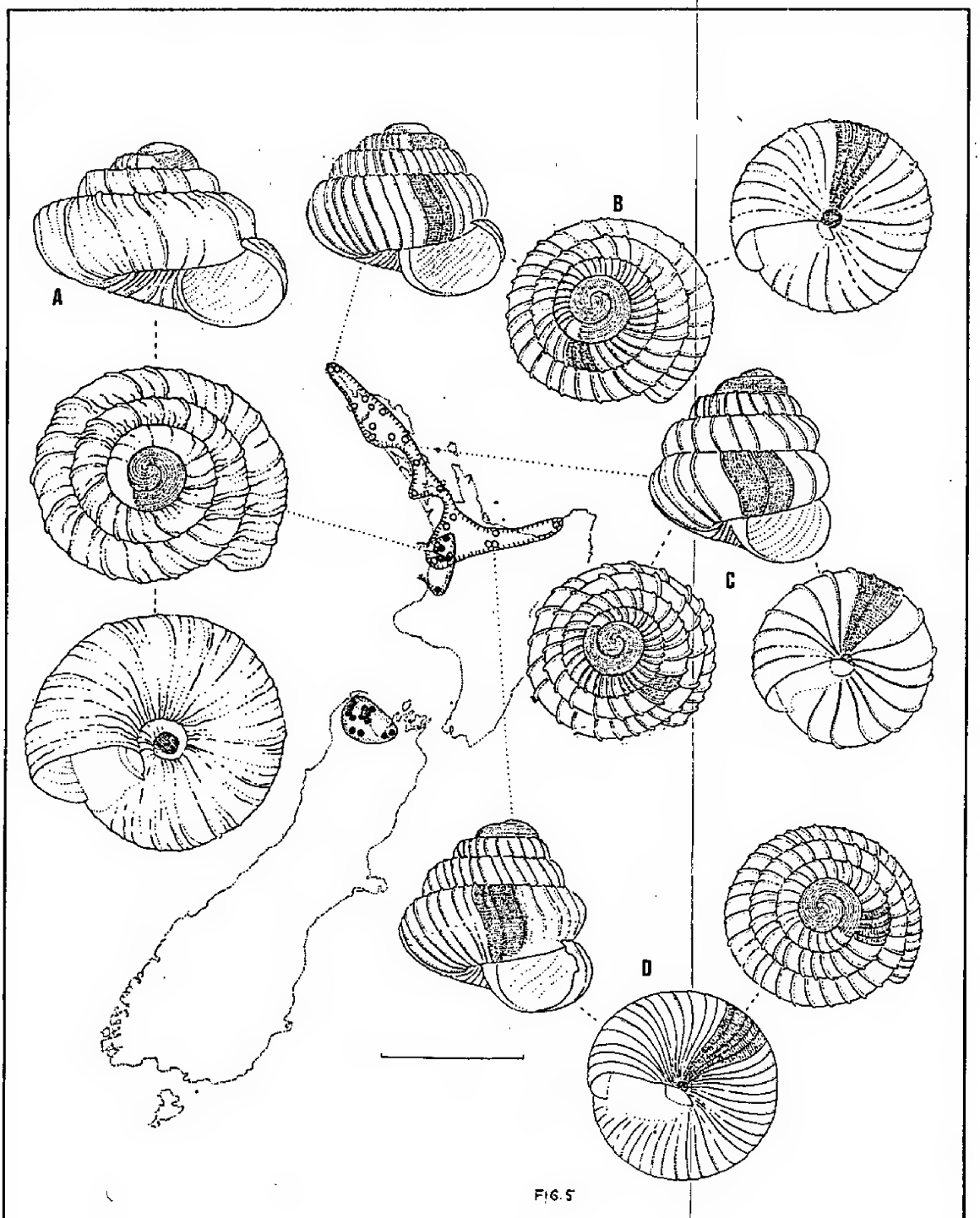


Fig. 5. Dispersal databases and shell drawings of *Taguahelix* (n. subgen.1) n. sp.3 (A), open circles in hatched line, *T.* (n. subgen.1) n. sp.4 (B-D), filled circles in stippled line. Scale line 1 mm.

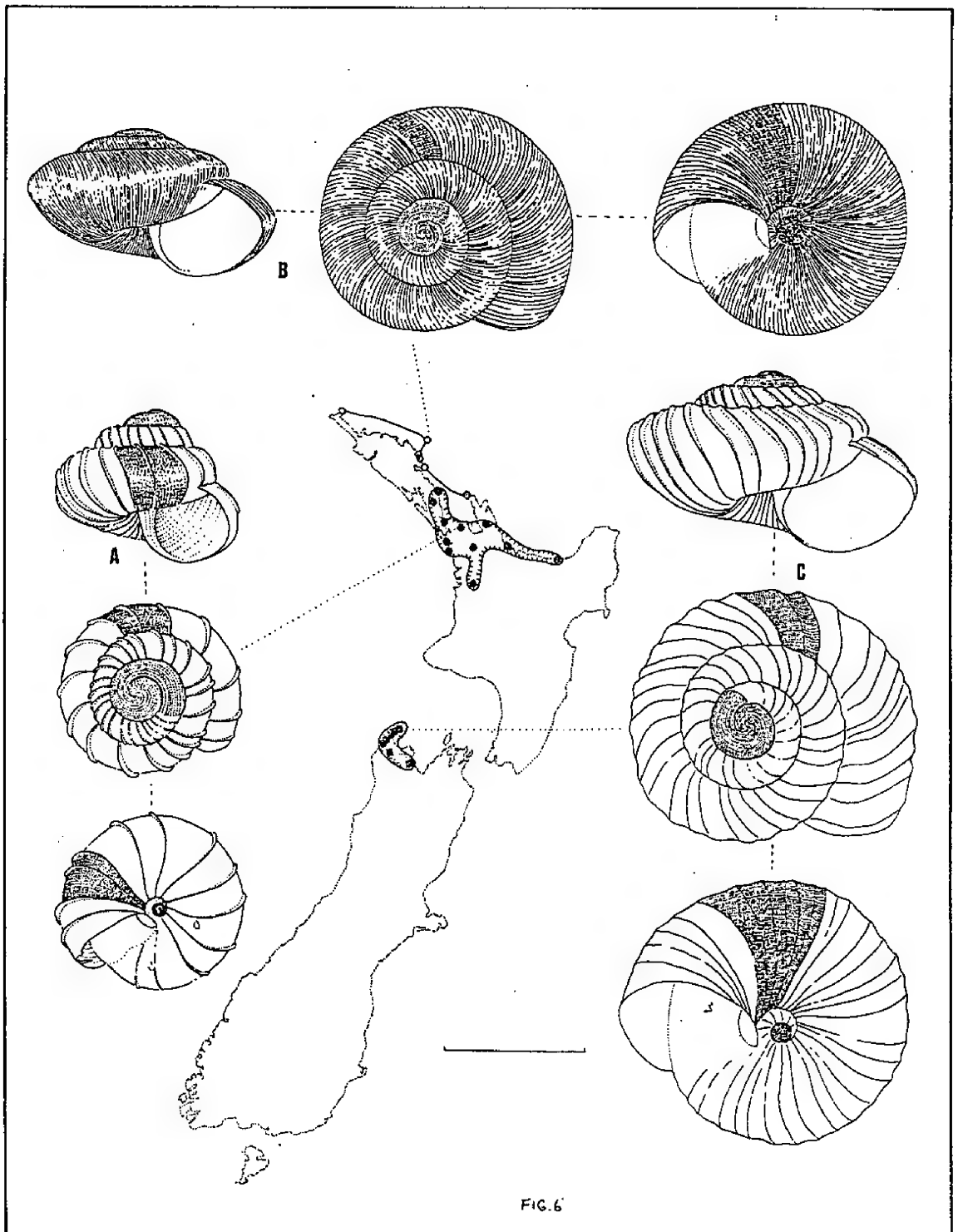


Fig. 6. The geographic placement of the main massing of *Taguahelix* (n. subgen.1) and the New Zealand margins of *T.* (n. subgen.2). See text for details.

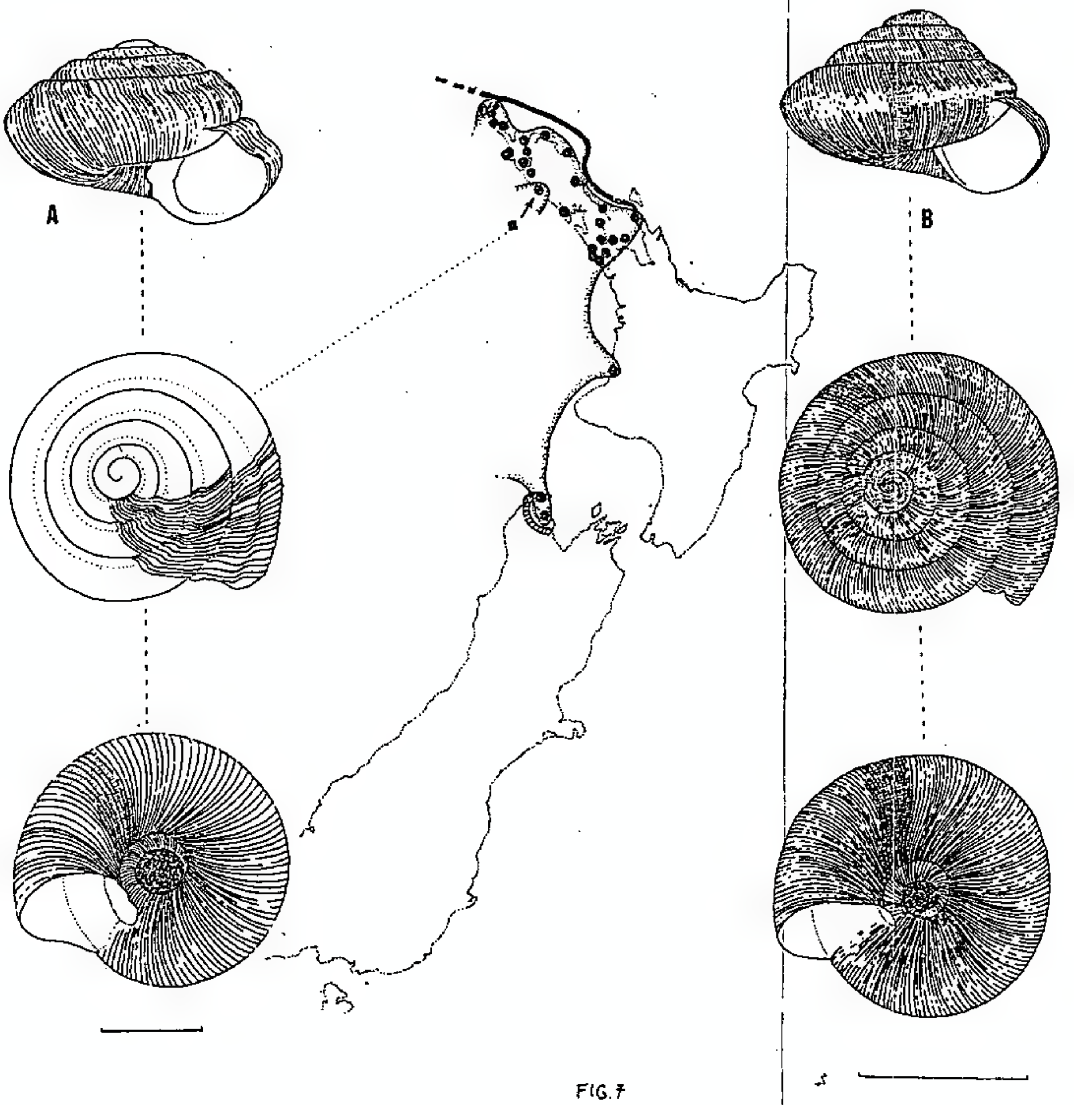


Fig.7. Dispersal database and shell drawings of N. gen.1 with tracks of *Taguahelix* (n. subgen.2) species indicated by a solid thick black line (dashed part pointing to a Lord Howe Island massing - Fig. 8) (*powelli*) and the closed hatched line.

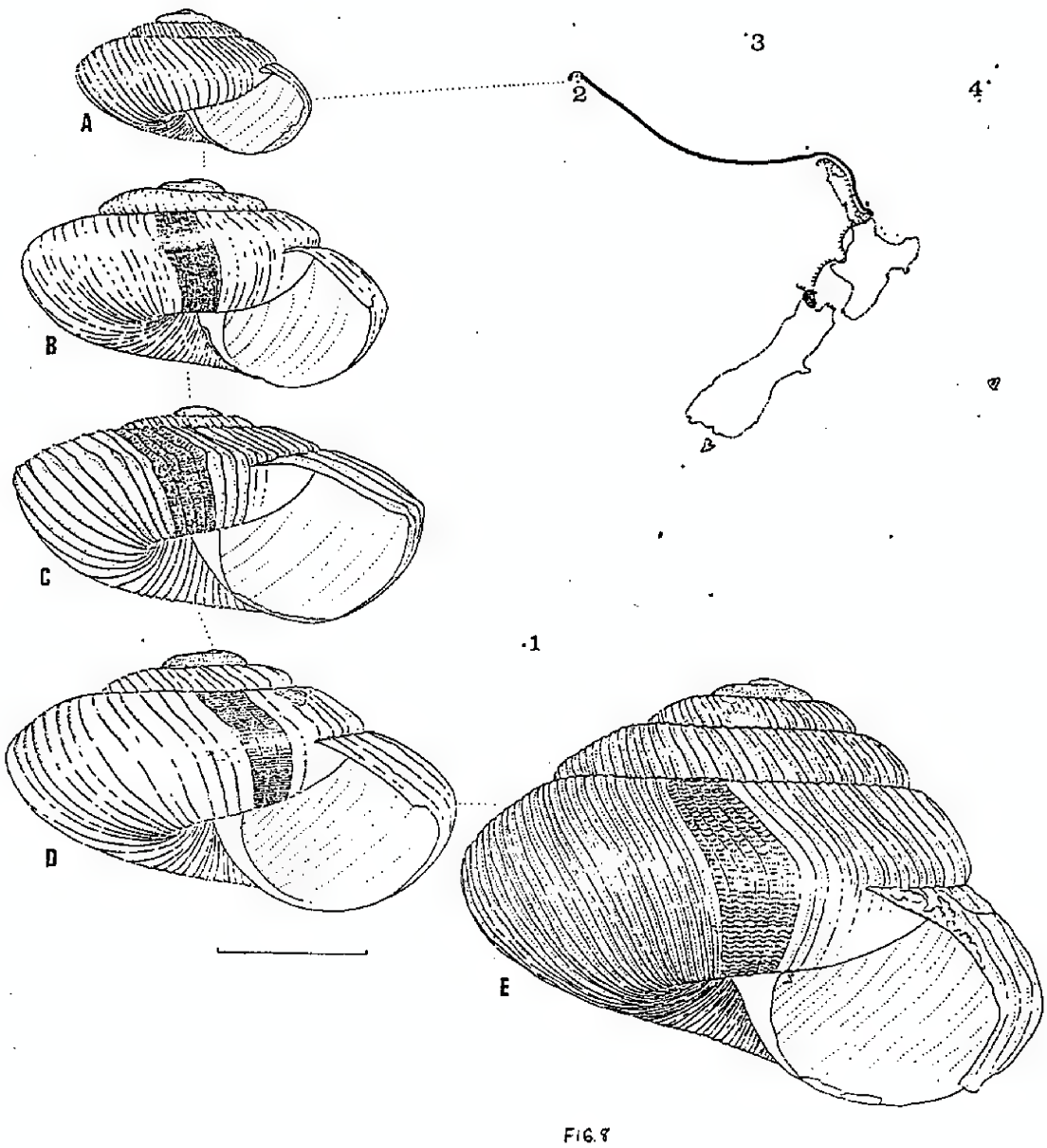


Fig. 8. The *Taguahelix* (n. subgen.2) track to Lord Howe Island (solid black line and short arc in N.W. South Island) and N. gen.1 (solid hatched line), with a profile display of related taxa on Lord Howe Island.

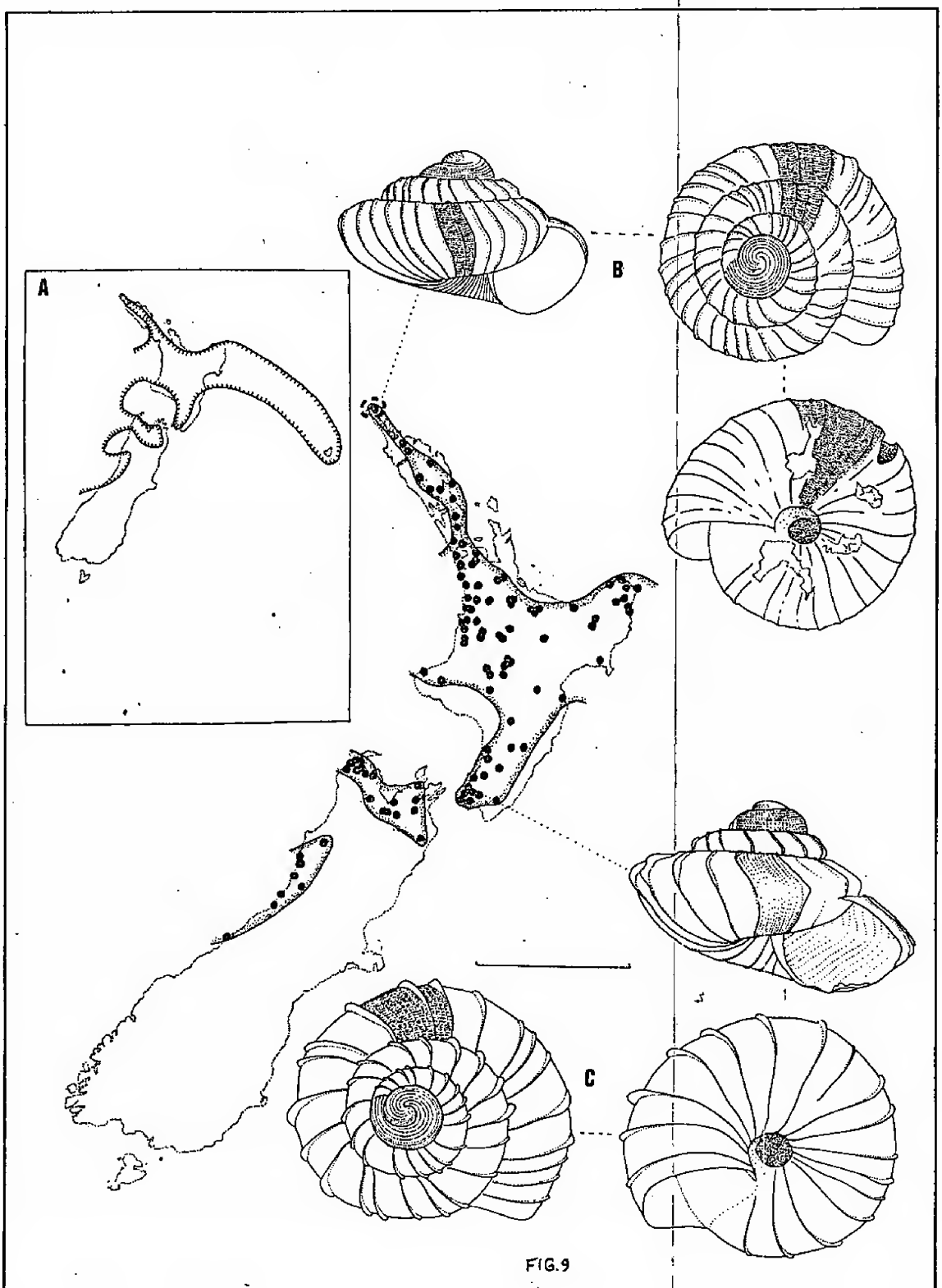


Fig. 9. Dispersal database and shell drawings of species of N. gen.2 to show a south-eastwards extension of the *Taguahelix* (n. subgen.2) margin shown in Fig. 8.

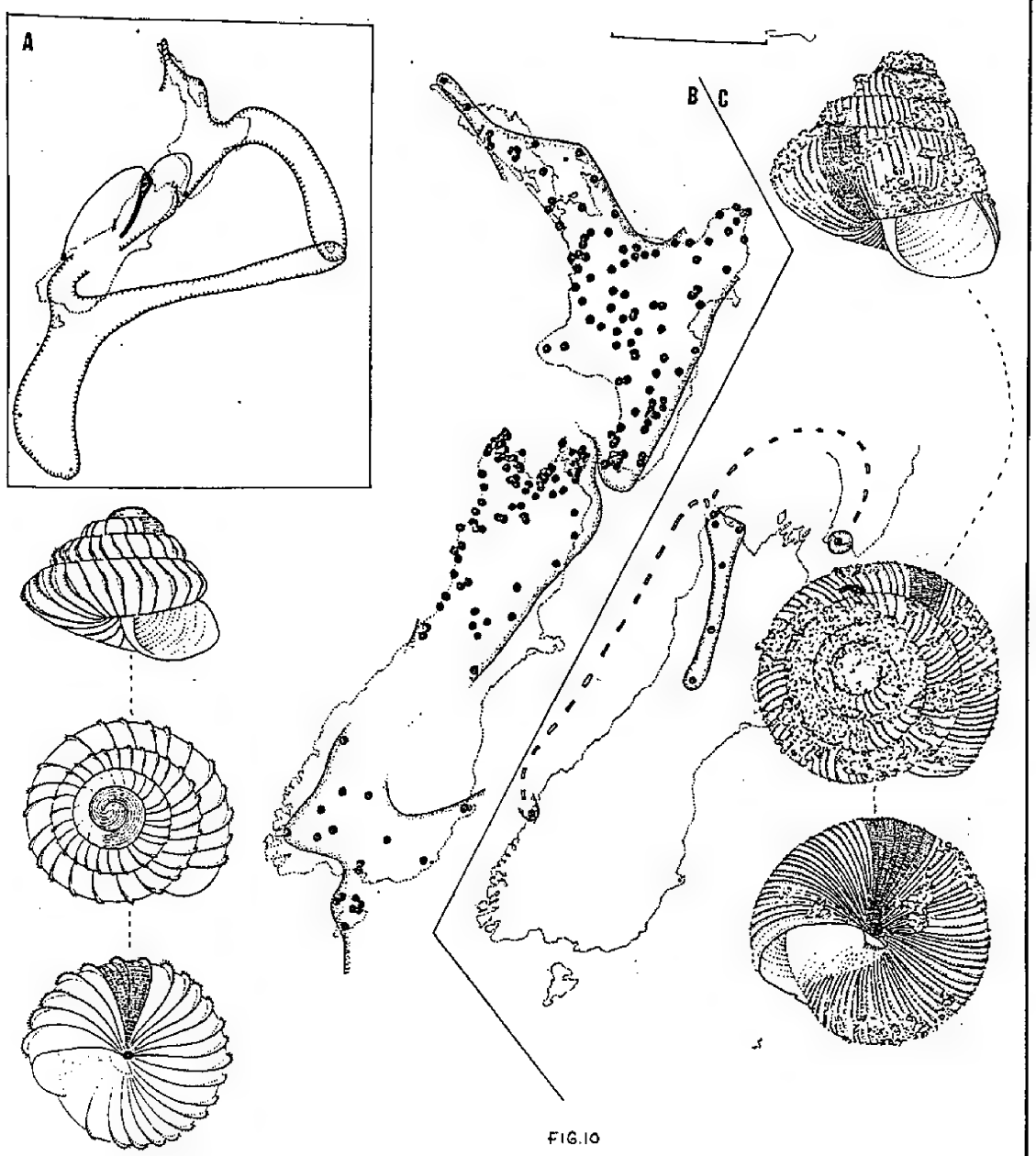


Fig. 10. Dispersal database and shell drawings of species of N. gen.3. See text for details.

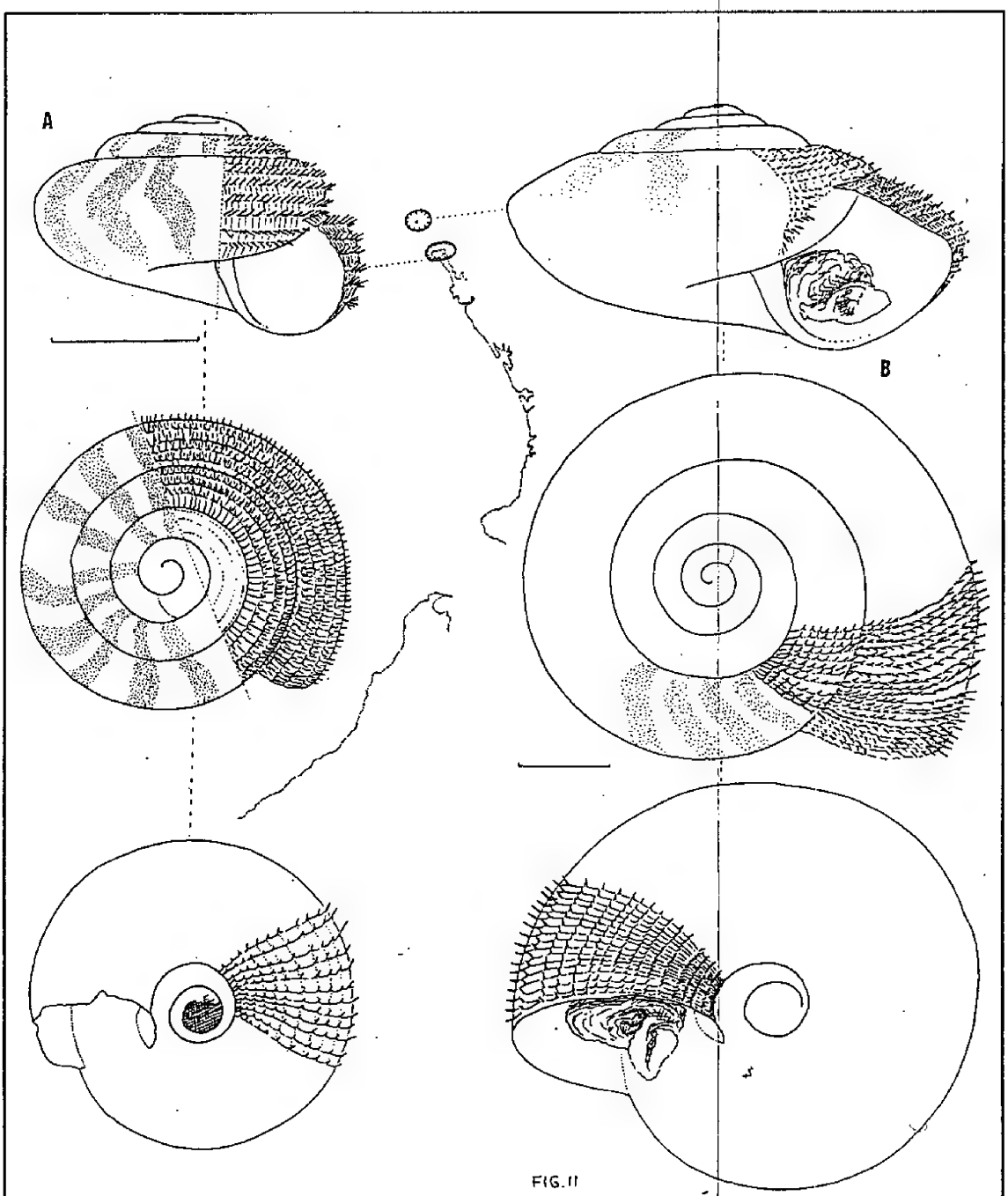


Fig. 11. Dispersal database and shell drawings of N. gen.4. See text for details.

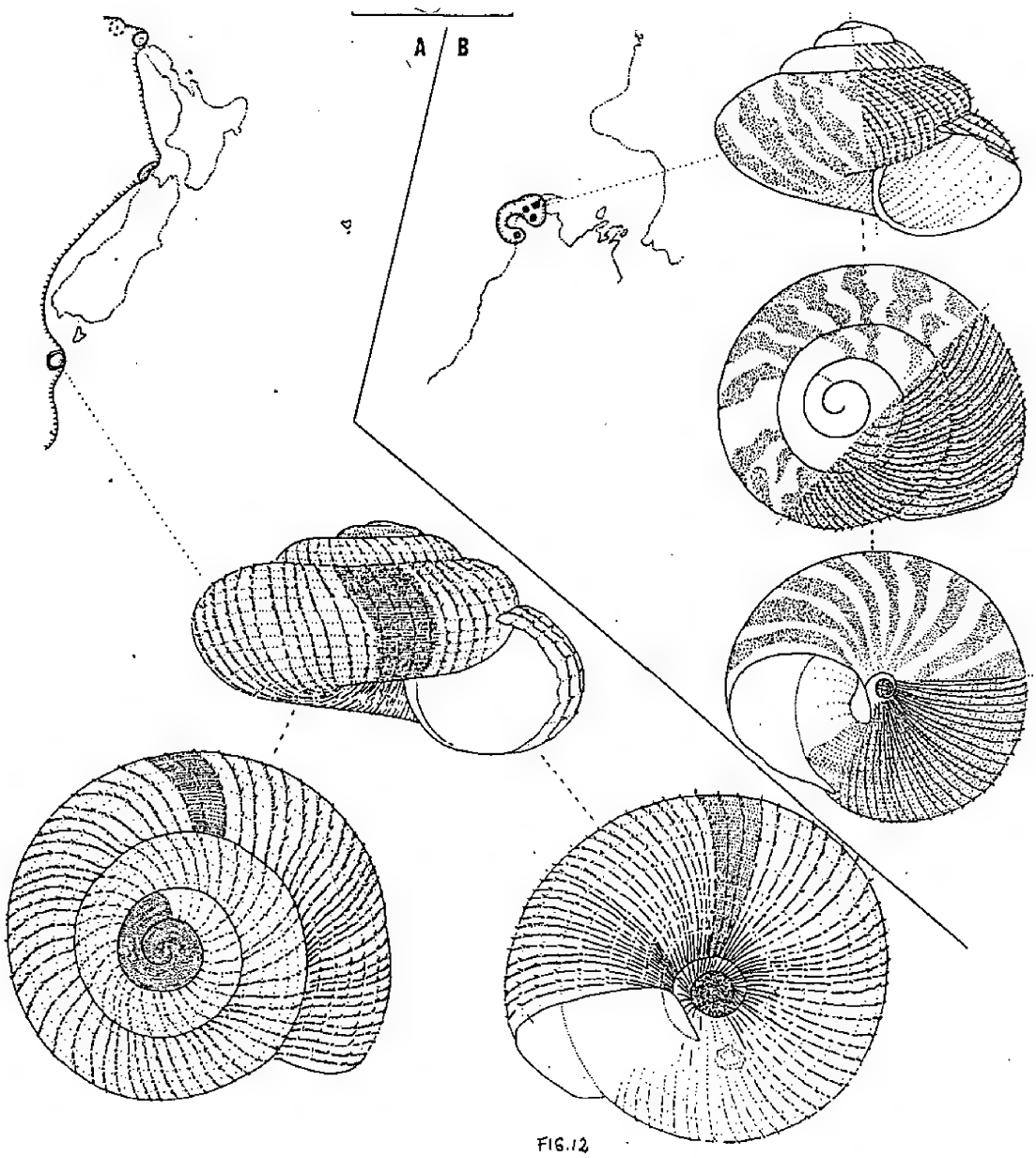


Fig. 12. Showing delineation (open hatched line) of the western arc illustrated, the position of taxa in it as far south as the Snares Islands, and shell drawings of the taxa involved. See text for details.

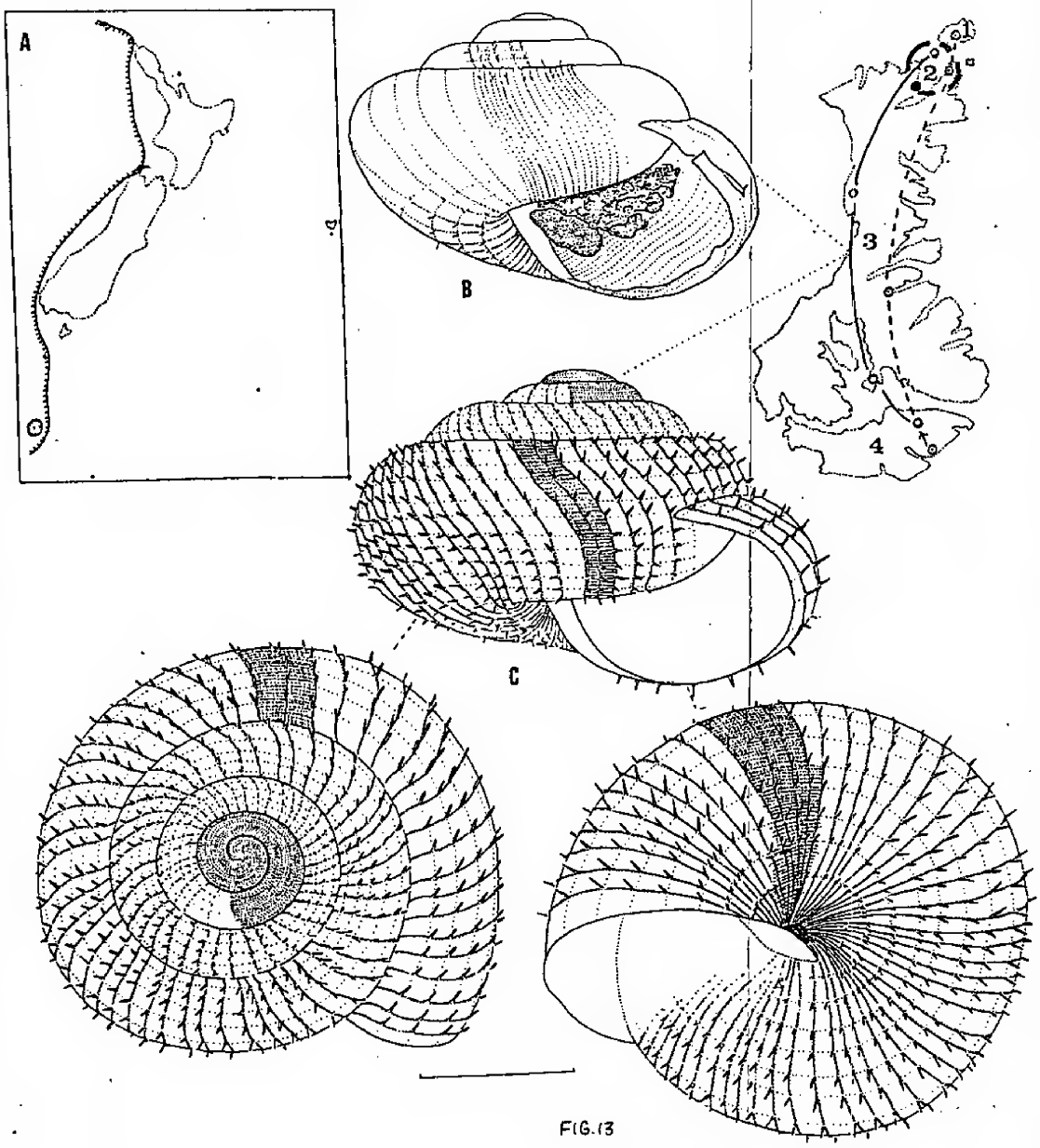


Fig. 13. Showing delineation (open hatched line) of the western arc, the geographic position of the Auckland Islands (solid stippled line), drawings of N. gen.6 *hirsutus* (Powell) and a summary of Auckland Islands N. gen.6 biogeography (map common to Fig. 13B and Fig. 13C). See text for details.

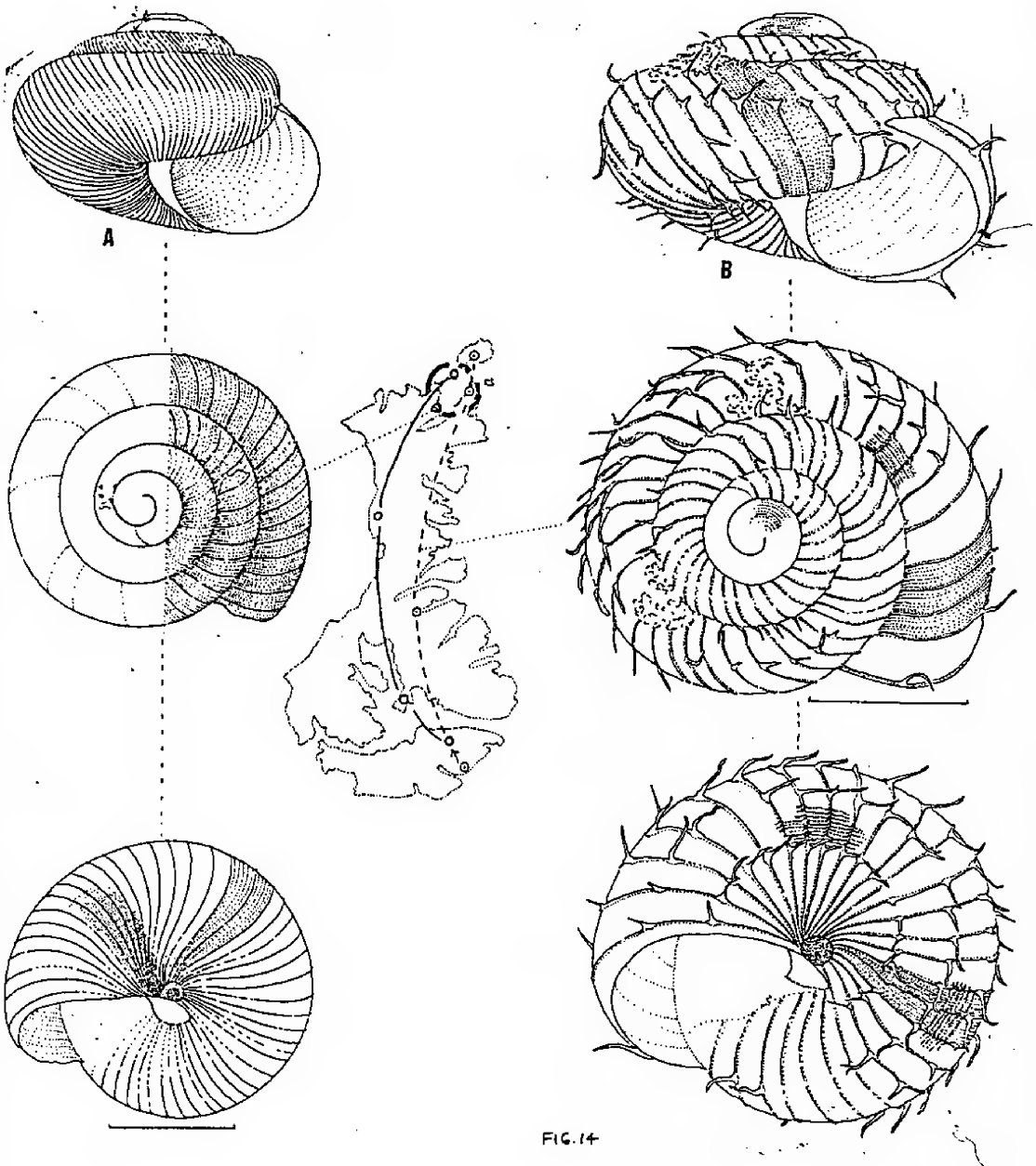


Fig. 14. Dispersal database and shell drawings for Auckland Islands species of N. gen.6. See text for details.

SUMMARY OF PROPOSED FORMAL CLASSIFICATION

This summary treats *Taguahelix* and *Allenella* as separate genera but Fig. 8 suggests that in the final presentation *Taguahelix* might, more appropriately, be treated as a subgenus of *Allenella*. References to figures in this article are appended at the species listing.

Genus *Taguahelix* Powell, 1955

Type species - *Thermia expeditionis* Suter, 1909 (= *Helix campbellica* Filhol, 1880)

Subgenus *Taguahelix* s.s.

Taguahelix (s.s.) *viridula* (Suter, 1909). Fig. 1B

Taguahelix (s.s.) *campbellica* (Filhol, 1880). Fig. 2B

Taguahelix (s.s.) n. sp.1. Fig.3

Subgenus N. subgen.1

Type species - *Taguahelix* (n. subgen.1) n. sp.1.

Taguahelix (n. subgen.1) n. sp.1. Fig. 4A

Taguahelix (n. subgen.1) n. sp.2. Fig. 4B-E

Taguahelix (n. subgen.1) n. sp.3. Fig. 5A

Taguahelix (n. subgen.1) n. sp.4. Fig. 5B-D

Taguahelix (n. subgen.1) *francesci* (Webster, 1904). Fig.6A

Taguahelix (n. subgen.1) *elaiodes* (Webster, 1904). Not mapped or illustrated.

Subgenus N. subgen.2

Type species - *Laoma* (*Phrixignathus*) *powelli* Climo, 1971

Taguahelix (n. subgen.2) *powelli* (Climo, 1971). Fig. 6B

Taguahelix (n. subgen.2) n. sp.1. Fig. 6C

Taguahelix (n. subgen.2) n. sp.2. Fig. 8B

Taguahelix (n. subgen.2) n. sp.3. Fig. 8C

Taguahelix (n. subgen.2) n. sp.4. Fig. 8D

Genus N. gen.1

Type species N. gen.1 n. sp.1

N. gen.1 n. sp.1. Fig. 7B

N. gen.1 n. sp.2. Fig. 7A

Genus N. gen.2

Type species - *Obanella rimutaka* Dell, 1952

N. gen.2 n. sp.1. Fig. 9B

N. gen.2 *rimutaka* (Dell, 1952). Fig. 9C

Genus N. gen.3

Type species - *Laoma* (*Phrixignathus*) *serratocostata* Webster, 1906

N. gen.3 *serratocostata* (Webster, 1906). Fig. 10B

N. gen. 3 n. sp.1. Fig. 10C

Genus N. gen.4

Type species - *Thalassohelix minuta* Gardner, 1967

N. gen.4 *minuta* (Gardner, 1967). Fig. 11A

N. gen.4 *regia* (Gardner, 1968). Fig. 11B

Genus N. gen.5

Type species - N. gen.5 n. sp.1

N. gen.5 n. sp.1. Fig. 12B

Genus N. gen.6

Type species - *Taguahelix hirsutus* Powell, 1955

N. gen.6 n. sp.1. Fig.13A

N. gen.6 *hirsutus* (Powell, 1955). Fig. 13B-C

N. gen.6 n. sp.2. Fig. 14B

N. gen.6 n. sp.3. Fig. 14A

This article is a discussion document to precede a paper to be submitted shortly for publication elsewhere. Comments are. therefore, welcome now.

ACKNOWLEDGEMENT

Pauline Mayhill (Tauranga) collected the only known material of N. gen.6 n. sp.3.

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THE SHELL GANG: A MYSTERY YARN

By Betty Andrews

[Editor's note - the following rollicking yarn was offered to members present at the 1991 A.G.M. held in that delightful conchologists' retreat known as "Benny's Bistro" [Copperfields, Seaview Road, Paraparaumu Beach - thoroughly recommended for a most satisfying meal, even with the rain pouring cats and dogs outside - how's that for a free ad.?]. The said editor had a bit of a lead over the other contestants because he'd not long before typed the membership list for the back page of *Cookia*. Anyway, Betty's ingenuity deserves a more permanent record - so here it is again for those out of town members and their friends who didn't get to the 1991 evening at Benny's. For those that did, I'll bet your memories would stand having another go at it. Answers in the next issue of *Cookia*, or, if you're desperate, we'll tell you at the next monthly meeting. Oh, by the way, the clues are the surnames of some of our members, carefully selected by Betty].

The Shell Gang had all become a bit browned off with Wellington because of all the (1. - - - - -)ving the (2. - - - - -)ies and the pubs - even MacDonald's! So Mac, the self-appointed leader, (3. - - - - -)ed them all together, and suggested they get their bikes and ride past the old (4. - - - - -) and up over the hill to the next town. "We'll meet back here in half an hour ready to go," he said.

When he got home he shouted, "Open the (5. - - - - -)," and the found he had to (6. - - - - - 7. - - - - -)ts, and all sorts of junk, to get his (8. - - - - -) old machine. Soon they were are assembled and ready to go, but Mac didn't like the look of (9. - - - - -)'s bike and said, "Heck, (10. - - - - -) that thing?", but got no reply, so off they went.

The next town was in sight when somebody suddenly yelled -"Hey (11. - - - - -)!" and he looked, just in time to see a crash. However, no one was hurt, so on they went.

It was like another world in thi(12. - - - - -). In the (13. - - - - -) at the (14. - - - - -) there lived at wicked (15. - - - - -) which had the people of the town terrified, especially a (16. - - - - -)tiful girl called (17. - - - - -). Mostly he kept to his own domain, but one fine day he sneaked into the town, and there all on her own was this girl, gazing into a rather lovely (18. - - - - -)-made. He snarled as he pounced and she screamed!

Suddenly, it seemed from nowhere, a man appeared running. He carried a (19. - - - - -); in fact sometimes he had to lean right over to reach it! He (20. - - - - -)at the animal as he fires, and it slinks away, (21. - - - - -) the day it ever saw that girl.

He told her his name as he comforted her. Fortunately the animal has (22. - - - - -) her no harm, and when he had wiped her eyes, he started going on about what he'd do to it if he ever saw it again. The way the muscles rippled under (23. - - - - -) shirt made her tingle - in fact, she got quite a (24. - - - - -) it. "Stop that (25. - - - - -) and ranting," she said. "Save your energy. Don't (26. - - - - -) all up over that thing".

So he quietened down, and they sat by the water holding hands as he received, in the way of kisses, (27. - - - - -) for his brave deed. There were (28. - - - - -) to see. Then they looked around and found a small flat piece of wood, and managed to stick a (29. - - - - - 30. - - - - -) it, and had a lot of fun sailing it on the water. As dusk fell, they (31. - - - - -)ly got up and left - to go their separate ways ...

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